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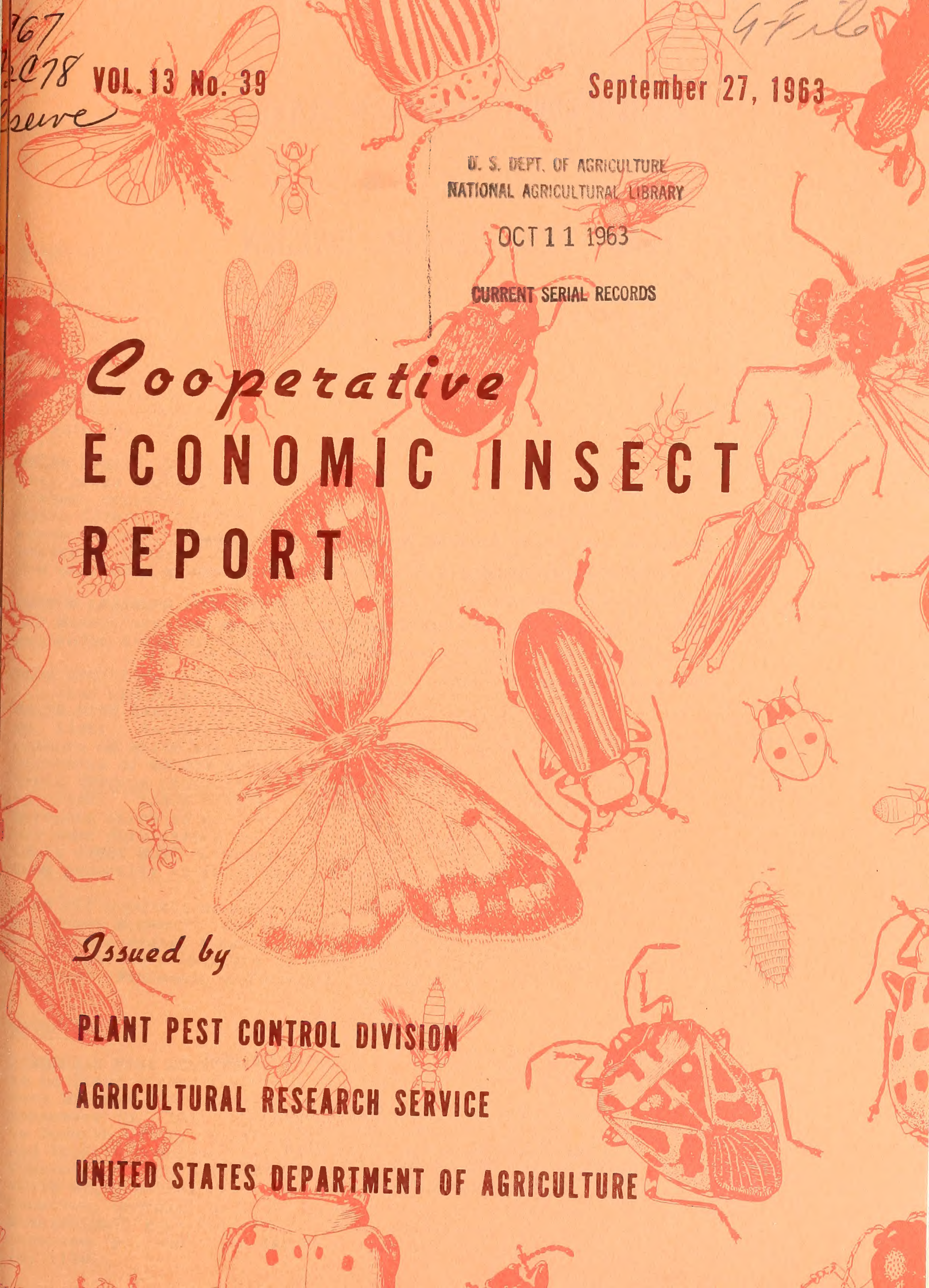

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Volume 13 September 27, 1963 Number 39

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

A severe NORTHERN CORN ROOTWORM infestation reported from St. Clair County, Michigan; this represents northernmost problem due to this species in State to date. (p. 1137). ALFALFA CATERPILLAR continues a problem to alfalfa in many areas of southern New Mexico, and larvae very numerous on alfalfa in Gila and Dome Valley, Yuma County, Arizona. ALFALFA WEEVIL severely infested third-growth alfalfa in Susquehanna County, Pennsylvania, and adults averaged 18 per 100 sweeps in Fremont, Washakie, Hot Springs and Big Horn Counties, Wyoming. (p. 1140). RANGE CATERPILLAR populations extremely heavy and denuded rangeland in area near Farley, Colfax County, New Mexico. (p. 1141).

PECAN APHIDS (*Melanocallis caryaefoliae* and *Monellia* spp.) extremely heavy on many pecan trees in Elmore, Autauga, Dallas, Perry, Choctaw, Mobile and other Alabama counties. (p. 1142). On Florida citrus, populations of CITRUS RUST MITE, TEXAS CITRUS MITE, PURPLE SCALE, CHAFF SCALE, BLACK SCALE and WHITEFLIES above average. Heavy, spotty infestations of citrus rust mite expected and statewide population of Texas citrus mite higher than in prior years, but only few scattered groves have important infestations. (p. 1143).

COTTON LEAFWORM moderate to heavy and defoliating cotton in areas of Oklahoma, New Mexico and Arizona; infestations also present in high and rolling plains and panhandle areas of Texas. (p. 1146).

BARK BEETLE activity reported in Texas, Arkansas, Alabama, Florida, North Carolina and Pennsylvania; some tree mortality noted and controls undertaken. WHITE-PINE WEEVIL damage continues in Northeast, with some attacks heavy. (p. 1148). An OLETHREUTID MOTH (*Eucosma gloriola*) is causing more widespread concern on white and Scotch pine plantings in Pennsylvania, and large scale outbreaks of BALSAM WOOLLY APHID discovered in North Carolina. A PINE LEAF APHID (*Pineus pinifoliae*) continued serious on white pine in eastern Maine. (p. 1149). LARCH SAWFLY caused moderate to heavy defoliation of Japanese and European larch in portions of Indiana, Lycoming and Clinton Counties, Pennsylvania, and some defoliation recorded in Maine and New York. (p. 1150). Intensity of adult GYPSY MOTH recoveries in southern area of New York reveals serious spread from generally infested areas to north and east. (pp. 1152, 1153).

HORN FLY populations extremely high on untreated cattle in north central and northeast Missouri, and moderate to heavy counts recorded in Oklahoma. (p. 1156). CRICKETS invading homes and much more numerous than usual in lower Michigan; also reported a nuisance in homes and business establishments in Arizona, Colorado, Wisconsin and Alabama. (p. 1157).

DETECTION

ZIMMERMAN PINE MOTH found in Boone and Mercer Counties, West Virginia; believed to be first record for State. (p. 1149). New county records of significance were SOYBEAN CYST NEMATODE in Graves County, Kentucky, and Fayette County, Tennessee (p. 1141); SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) in Forsyth County, North Carolina (p. 1150); JAPANESE BEETLE in Bond, Marion and Fayette Counties, Illinois (p. 1158); EUROPEAN CHAFER in Hartford County, Connecticut, and Genesee, Cortland and Clinton Counties, New York (p. 1159); WHITE-FRINGED BEETLES in Bay County, Florida; Gwinnett, Whitfield and Worth Counties, Georgia; De Kalb and Morgan Counties, Alabama; Webster County, Mississippi; East Feliciana Parish, Louisiana; and Cabarrus County, North Carolina (p. 1159); and IMPORTED FIRE ANT in Tishomingo County, Mississippi (p. 1159).

CORRECTIONS

See page 1147

SPECIAL REPORTS

Meadow Spittlebug Survey in Illinois - 1963 (map). (p. 1139).

Status of the Screw-worm in the Southwest. (p. 1155).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Tomatoes (for processing), Soybeans (for beans), Corn (for grain), Clover-timothy, Alfalfa, and Tobacco in Maryland in 1962. (pp. 1162-1167).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Apples in Colorado in 1962. (p. 1168).

Insects Not Known to Occur in the United States (bagrada bug (Bagrada hilaris (Burm.)). (p. 1169).

Reports in this issue are for week ending September 20, unless otherwise indicated.

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WEATHER OF THE WEEK ENDING SEPTEMBER 23

The third hurricane of the season moved toward the Texas upper coast on Monday, September 16, preceded by heavy rains along the coast from Galveston, Texas, to Mobile, Alabama. The storm dumped 15 to 25 inches of rain on some counties in southeastern Texas and nearby areas in Louisiana, and lesser amounts farther inland. Another tropical storm approached the southern California coast. It produced heavy rains over much of the southern part of that State, over nearby portions of Arizona, and over the Great Basin. This storm drenched Yuma, Arizona, with 2.42 inches of rain on Tuesday. That amount is four times the September normal and is more than two-thirds of the annual normal for Yuma. A low pressure area that early in the week lay a few hundred miles southeast of Nantucket, Massachusetts, and a stationary front that extended southwestward to the Florida Penninsula produced several inches at some locations along the coast and lighter amounts farther inland. A low pressure area centered north of Winnipeg, Canada, on Tuesday, moved rapidly northeastward. A trailing front from northern lower Michigan to the southern Rockies produced a broad band of light rains over the upper Mississippi Valley, the northern Great Plains and Plateau, and the northern and central Rocky Mountains. Some very sharp temperature contrasts existed across this front. At noon Tuesday, Des Moines, Iowa, registered 83° and Spencer, Iowa, registered 61°. Shortly after noon, Chicago registered 92° but the temperature tumbled to the 60's after the frontal passage. As the front continued southward, it dropped temperatures but produced little rain. Tennessee registered no rain. The dry area, which received no rain or only light sprinkles extended from the central parts of Illinois, Indiana, and Ohio, southward to southern Alabama and the coast of Georgia.

Dry, sunny weather prevailed in the western counties of Florida and the northwestern part of the Peninsula. Southern Florida received generous rains from a low pressure area which covered the eastern part of the Gulf of Mexico. Key West, Florida, received 10.29 inches of rain during the week. Of the amount, 9.00 inches fell on Thursday and Friday. Temperatures averaged below normal over most of California and the Great Basin; also along the Gulf of Mexico and from the

(Continued on page 1147)

CEREAL AND FORAGE INSECTS

CORN EARWORM (Heliothis zea) - VIRGINIA - Larvae averaged 1 per 20 plants in 5 soybean fields surveyed in Hanover and Chesterfield Counties; average pod damage 7-25 percent in 3 infested fields; treatments underway. (Matheny). Damaging in several sections of area between Rappahannock and Potomac Rivers. Light on soybeans in Nansemond and Surry Counties, 1 per 50 to 1 per 200 feet of row; and medium in King George and Sussex Counties, 1 per 10 to 2 per 5 feet of row. None found in Isle of Wight County and in Virginia Beach and Chesapeake. (Tarpley). NORTH CAROLINA - Ranged 0-4 per 25 feet of row in 16 soybean fields checked in Wilson, Johnston, Wayne and Jones Counties; field in Jones County slightly damaged. (Mount, Sept. 13). Destroyed 60-acre field of soybeans in Pamlico County. (Rea, Sept. 13). ALABAMA - Locally heavy on sorghum in Autauga County, 1-6 full-grown larvae per head. (McQueen). OHIO - Larvae increasing on late-planted corn throughout southern area; 5-10 percent of sweet corn infested in Pickaway County, central area. Most larvae in early stages. (Richards). ARKANSAS - Larvae per 30 feet of row in soybeans 0-36 compared with 0-69 previous week; 8 of 15 fields infested compared with 12 of 15 previous week. Seven of infested fields had only 1-5 larvae per 30 feet of row. (Sharp). OKLAHOMA - Light to heavy infestations present on alfalfa in Kay and Noble Counties, north central area, with counts 5-75 per 10 sweeps. Counts 75 per 10 sweeps in Major County, northwest, and 6-7 per 10 sweeps in Tillman County, southwest. (Okla. Coop. Sur.). COLORADO - Damage to field corn varies considerably in Cheyenne, Kit Carson, Adams, Crowley, Otero, Bent and Prowers Counties, with 5-10 larvae per 10 ears. Larvae caused considerable damage to home garden sweet corn in Pueblo, Crowley, Otero, Weld and Larimer Counties. (Jenkins).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Caused about 25 percent stalk breakage in cornfield near potatoes in Camden County. (Jones, Sept. 13). ALABAMA - Caused severe damage to 20-acre field of grain sorghum in Autauga County; 50-60 percent of stalks with 1-3 full-grown larvae per stalk. Some pupae noted in stalks. Another 10-acre field near Autaugaville heavily infested with small larvae feeding in heads. (McQueen). OHIO - Heavy infestations observed in home garden sweet corn in Brown, Adams and Scioto Counties, southern area. (Wells, Lyon). NEBRASKA - Third to fifth instars present in central and southern areas; infestations ranged moderate to heavy. (Bergman).

FALL ARMYWORM (Laphygma frugiperda) - NEW JERSEY - Heavy infestation noted on field corn. (Ins.-Dis. Newsltr., Sept. 17). GEORGIA - Light infestation on heads of pearl millet in northwest area. (Johnson). TEXAS - Causing light to moderate damage to improved pastures in central part of eastern area. (Tex. Coop. Rpt.). ARIZONA - Larvae causing moderate damage to corn in Yuma County. Infestations also found on alfalfa in Pinal and Maricopa Counties; averaged 150 per 100 sweeps. (Ariz. Coop. Sur.).

SORGHUM WEBWORM (Celama sorghiella) - ALABAMA - Light infestations in sorghum and Sudan grass in Madison, Autauga and Dallas Counties. (Buttram et al.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - Spotted infestations found in ears of all late corn in eastern Twin Falls County; 1-3 larvae per ear common. (Douglas, Gibson, Portman).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - MICHIGAN - A severe infestation reported from St. Clair County represents northernmost problem due to this species in State to date. Root injury caused considerable lodging. Ear damage extensive and adults abundant on September 17. (Pynnonen). NEBRASKA - Several adults found in alfalfa adjacent to corn in Garfield and Loup Counties . (Bergman).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - NEBRASKA - Adults very abundant on corn near Waverly, Lancaster County. In central and southern areas, populations very low in corn and all vegetative fields near corn. (Bergman).

DUSKY SAP BEETLE (Carpophilus lugubris) - OHIO - Adults extensive in 2 fields of field corn in Athens County. This species is primarily a sweet corn pest in State. (Ackerman, Holdsworth).

CHINCH BUG (Blissus leucopterus) - ALABAMA - Extremely high population on 60 acres of pearl millet in Elmore County. (McQueen).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Numbers continue low with a decrease from previous week in 16 fields checked regularly in Lonoke County, east central. Adults averaged 2 per 100 heads. (Sharp).

SORGHUM MIDGE (Contarinia sorghicola) - NEW MEXICO - Populations appear light in grain sorghum checked in Clovis area, Curry County; some growers treating. (N. M. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - A local infestation in field corn caused leaf discoloration since mid-August in Ingham County. (Hoffman, Proctor). COLORADO - Populations dropped on corn and sorghum to noneconomic levels in Adams, Baca, Bent, Cheyenne, Crowley, Kit Carson, Kiowa, Otero, Prowers and Pueblo Counties. (Jenkins).

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Weekly surveys being made in Yankton and Bon Homme Counties to determine if and when first sexual forms appear this fall. Counts per 100 sweeps in alfalfa 275 in Bon Homme County, 235 in Yankton County and 27 in Sanborn County. (Hintz). NEBRASKA - Light, 2-11 per 10 sweeps, on alfalfa in central, southern and southeast areas. (Bergman). OKLAHOMA - Reported killing seedling alfalfa in localized area of Tillman County. Counts of 400 per 10 sweeps noted in established stands in Tillman County, with treatments reported in county. Light, 25-50 per 10 sweeps, in Kay, Noble and Major Counties. (Okla. Coop. Sur.). COLORADO - Populations vary; counts per 100 sweeps 10-50 in Mesa County and 50-150 in Huerfano County. Moderate numbers in Pueblo, Crowley, Otero and areas of Bent and Prowers Counties. High populations present in dry areas of Bent and Prowers Counties. (Bulla, Jenkins, Schweissing). NEW MEXICO - Generally light in majority of alfalfa checked in Dona Ana and Roosevelt Counties. (N. M. Coop. Rpt.).

PEA APHID (Acyrthosiphon pisum) - MARYLAND - Slight buildup continues on alfalfa in central area; 10-70 per sweep. (U. Md., Ent. Dept.). NEBRASKA - Ten per 10 sweeps in Cedar County alfalfa. (Roselle). In central and southern areas, ranged 3-9 per 10 sweeps. (Bergman). OKLAHOMA - Light on alfalfa in Major County. (Okla. Coop. Sur.). NEW MEXICO - Light to moderate in Chaves and Roosevelt County alfalfa. (N. M. Coop. Rpt.). UTAH - Becoming much more numerous on alfalfa in Willard-Brigham area of Box Elder County. (Knowlton). WYOMING - Averaged 1,800 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults moderate on alfalfa in Montgomery and Frederick Counties. (U. Md., Ent. Dept.). NEBRASKA - Larvae and adults averaged 15 per 10 sweeps in Cedar County alfalfa. (Roselle). Ranged 3-20 per 10 sweeps on alfalfa in central and southern areas. (Bergman).

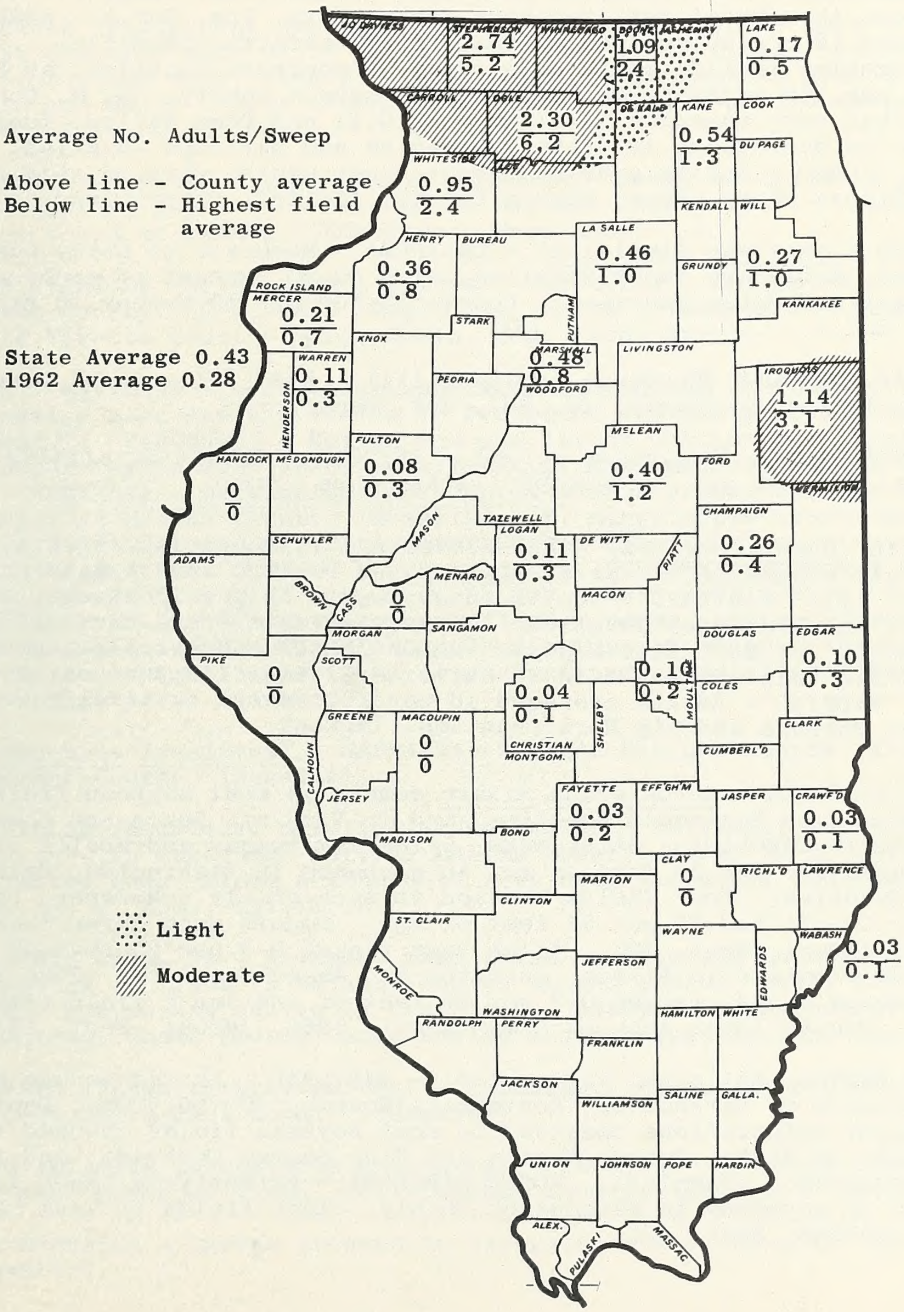
LYGUS BUGS (Lygus spp.) - WYOMING - Adults averaged 58 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

RAPID PLANT BUG (Adelphocoris rapidus) - OHIO - Heaviest counts averaged 1 per sweep in alfalfa in Clermont County, southwest. (Lyon). NEBRASKA - Larvae and adults 12 per 10 sweeps in Cedar County alfalfa. (Roselle).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Adults averaged 26 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Heaviest populations of west central and southwest collected from alfalfa in Darke, Miami and Preble Counties. (Lyon). ILLINOIS - Annual adult survey completed. Populations increased from State average of 0.20 adults per sweep in 1962 to 0.43 adults per sweep in 1963. Entire State rates noneconomic except for 6 counties in northwest district which rate light to moderate and 1 county in east district which rates moderate. A map below shows results of survey. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG SURVEY IN ILLINOIS - 1963



THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Appears to be decreasing in Graham, Greenlee, Pinal and Maricopa Counties; 500-700 per 100 sweeps. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Declined considerably on alfalfa in all sections. (U. Md., Ent. Dept.). NEBRASKA - Averaged 6 per 10 sweeps in Cedar County alfalfa. (Roselle).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - UTAH - Very numerous in alfalfa-field near Brigham City, Box Elder County. (Knowlton).

ALFALFA CATERPILLAR (Colias eurytheme) - MARYLAND - Adults very active in blooming alfalfa in Montgomery and Frederick Counties. (U. Md., Ent. Dept.). WISCONSIN - Adults numerous throughout most southern areas. (Wis. Ins. Sur.). NEBRASKA - Larvae averaged 12 per 10 sweeps in Cedar County alfalfa. (Roselle). NEW MEXICO - Continues a problem in alfalfa in many areas of southern counties; as high as 30-50 larvae per 100 sweeps near Portales, Roosevelt County. (N. M. Coop. Rpt.). ARIZONA - Larvae very numerous in alfalfa in Gila and Dome Valley, Yuma County, but appear to be decreasing in Graham, Greenlee and Maricopa Counties. (Ariz. Coop. Sur.). IDAHO - Adults averaged about 1 per square yard on alfalfa in Hammett and Glenns Ferry areas, Elmore County. (Smith).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Moderate to heavy numbers present in Kay, Noble and Major Counties, with 50-95 percent of terminals infested in areas of Kay and Noble Counties. Counts 15-100 per 10 sweeps in Major County. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - MARYLAND - Small larvae light on alfalfa in Frederick County. (U. Md., Ent. Dept.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Infesting alfalfa in Graham County; 150-200 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - PENNSYLVANIA - Third-growth alfalfa severely infested by all stages of larvae in Susquehanna County; adults also present. (Udine, Sept. 16). MARYLAND - Adults common up to 31 per 10 sweeps, on alfalfa in Montgomery and Frederick Counties; larvae also active and causing light to moderate damage. (U. Md., Ent. Dept.). RHODE ISLAND - Populations generally low throughout State this summer, even in untreated fields. (Mathewson, Peabody, Wakefield). WYOMING - Adults averaged 18 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

STINK BUGS - VIRGINIA - Acrosternum hilare common in most soybean fields checked in Isle of Wight and Nansemond Counties, and in Virginia Beach and Chesapeake. (Tarpley). NORTH CAROLINA - Stink bugs, primarily nymphs and adults of A. hilare, generally ranged 0-8 per 50 feet of row in soybeans in Washington, Beaufort, Hyde and Tyrrell Counties; four fields checked in each county. However, one field in Washington County had 20 per 50 feet of row. Counts much lower than at same time in 1962. (Mount, Sept. 20). Stink bugs ranged 0-3 per 25 feet of row in 10 soybean fields examined in Wilson, Johnston and Wayne Counties. Five fields examined in Jones County ranged 0-3 per 25 feet of row and 1 field with 8 per 25 feet of row. Counts lower than at same time in 1962. (Mount, Sept. 13).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Larvae caused moderate damage to soybeans at Darnestown, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Light infestations observed in most soybean fields checked in Nansemond, Isle of Wight, Surry, Sussex and King George Counties, and in Virginia Beach and Chesapeake. (Tarpley). NORTH CAROLINA - Extensively laced foliage of 20-acre field of soybeans in Pasquotank County; other fields in area show much less damage. (Jones, Sept. 13).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Caused moderate foliage injury to soybeans near Darnestown, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Observed in most soybean fields checked in Nansemond, Isle of Wight, Surry, Sussex and King George Counties, and in Virginia Beach and Chesapeake. (Tarpley). ARKANSAS - Range per 30 feet of row in soybeans 0-38 compared to 0-27 previous week; 9 of 15 fields scouted infested compared with 11 of 15 previous week. (Sharp).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Heavy in some peanut fields in Barbour County. (Barwood, Walton, Hagler). OKLAHOMA - Surveys show considerable damage inflicted to peanuts in experimental plots at Stratford, Garvin County. No infestations found in fields checked in Payne and Pottawatomie Counties (2 fields each). (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Range per 30 feet of row in soybeans 0-89 compared with 0-109 previous week; 2 of 15 fields infested compared with 8 of 15 previous week. (Sharp). OKLAHOMA - Large numbers present in alfalfa in Kay, Noble and Major County areas, with counts 150-200 per 10 sweeps in Tonkawa area. (Okla. Coop. Sur.).

SPIDER MITES (Tetranychus spp.) - NORTH CAROLINA - Heavy on field of peanuts in Nash County. (Smith, Sept. 6). Peanuts in Halifax County appear damaged by mites although none found on plants. (Robertson, Sept. 13).

SOYBEAN CYST NEMATODE (Heterodera glycines) - KENTUCKY - Collected for the first time in Graves County. (PPC, Cent. Reg., Aug. Rpt.). TENNESSEE - Found for the first time in Fayette County. (PPC, South. Reg., Aug. Rpt.).

GRASSHOPPERS - MARYLAND - Melanoplus spp. very common and noticeable in grassy borders alongside corn and hay fields in Frederick and Montgomery Counties. (U. Md., Ent. Dept.). WISCONSIN - Mating and egg laying continues. Localized migrations occurring in many areas as alfalfa is cut and corn leaves dry. (Wis. Ins. Sur.). NEBRASKA - Melanoplus femurrubrum adults ranged 6-8 per square yard in field margin in Nemaha County. (Roselle). M. sanguinipes approximately 12-15 per square yard in Clay and Fillmore County field margin adjacent to corn, alfalfa and sorghum. (Bergman). COLORADO M. sanguinipes, M. femurrubrum and M. differentialis present at high levels of 15 per square yard within city limits of Colorado Springs, El Paso County; concentrated in yards, parks and weedy areas. Some damage observed. (Watson). IDAHO - Populations of several species decreased in Dietrick Butte area. In localized concentrations, populations decreased from 20 to 2 per square yard. (Smith).

A CRICKET (Nemobius fasciatus) - NEBRASKA - Ranged 6-8 per square yard in field margin in Nemaha County. (Roselle).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Extremely heavy populations denuded rangeland in area near Farley, Colfax County; found to be moving "as an army". Estimated count along a line 8-10 feet deep was about 800-900 larvae per square yard. (N. M. Coop. Rpt.).

WEBWORMS - NORTH CAROLINA - Infested many lawns in McDowell County and becoming extensive problem in lawns in Wilkes County. (Love, Daniel; Sept. 13). PENNSYLVANIA - Larvae and adults of Crambus sp. heavy in a demonstration plot of sod in Doylestown, Bucks County; some adults laying eggs. (Nixon, Aug. 28).

CORN LEAF APHID (Rhopalosiphum maidis) - COLORADO - Caused some discoloration of brush on broomcorn in Baca County. (Jenkins).

A CHINCH BUG (Blissus leucopterus insularis) - FLORIDA - Severely infesting stems of St. Augustine grass at Tampa, Hillsborough County. (Hale).

A BILLBUG - NEBRASKA - Larvae present in bluegrass sod in Lincoln, Lancaster County. (Roselle).

FRUIT INSECTS

BUFFALO TREEHOPPER (Stictocephala bubalus) - OHIO - Caused severe damage to young trees and new growth in older trees at apple orchard in Clermont County, southwest. Injury due to twig punctures by ovipositing females. (Lyon).

APPLE LEAFHOPPER (Empoasca maligna) - OHIO - Nymphs light on apple trees leaves in unsprayed orchard in Clermont County, southwest. (Lyon).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WISCONSIN - Noticeable on a few apple trees in Kenosha County. (Wis. Ins. Sur.).

WALNUT SCALE (Aspidiotus juglansregiae) - FLORIDA - Moderate on stem and bark of pear at Tampa, Hillsborough County. (Hale, Sept. 9).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Light on stem and bark of plum at Tampa, Hillsborough County. (Hale, Sept. 10).

CODLING MOTH (Carpocapsa pomonella) - CALIFORNIA - Larvae medium and feeding on almond nut meats in Yuba City, Sutter County. (Cal. Coop. Rpt.). OHIO - No adults emerged since September 3 in Wayne County. (Forsythe).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Heavy in Halloween peaches in Wheeler Ridge, Kern County. (Cal. Coop. Rpt.).

A FALL WEBWORM (Hyphantria texana) - CALIFORNIA - Heavy larval feeding on peach foliage in Orland, Glenn County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Heavy on pecans in Mitchell County. (Sheffield, Crownover). PENNSYLVANIA - General in Indiana and Westmoreland Counties (Yackley, Aug. 12); medium locally in Huntingdon County (Negley, Sept. 4); heavy buildup noted in Butler County (Negley, Aug. 9); medium in southwestern area, becoming less eastward on cherry and other trees. (Udine).

SHOT-HOLE BORER (Scolytus rugulosus) - VIRGINIA - Heavy on 3 trees in block of Stark Crimson apples in orchard in Cana, Carroll County. (Amos, Aug. 28).

APPLE MAGGOT (Rhagoletis pomonella) - OHIO - Last adult emerged from cage September 3 in Wayne County; occasional adult captured on sticky board trap as of September 18. (Forsythe).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - CALIFORNIA - Peach fruit from old orchard found infested in packing shed on 3 occasions; this was ripe fruit for cutting and drying. Most fruit with split pits. (Cal. Coop. Rpt., Sept. 5).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Ranged 50-60 per leaf on peach trees in Mesa County; problem in some apple orchards in Delta County and under control in Montrose County. (Bulla).

PEACH SILVER MITE (Aculus cornutus) - COLORADO - Abundant in some peach orchards in Mesa County; causing silvering of leaves. (Bulla).

PECAN APHIDS - ALABAMA - Melanocallis caryaefoliae and Monellia spp. extremely heavy in many pecan trees in Elmore, Autauga, Dallas, Perry, Choctaw, Mobile and other counties; these aphids along with drought stress now completely defoliated many trees; second growth now starting following rains in some orchards which could bring about serious conditions by reducing maturing ability of nuts and providing unhealthy situation for setting of nuts in 1964. (Hagler, Bagby, Seibels, et al.). GEORGIA - Unspecified species heavy on pecans in Mitchell County. (Sheffield, Crownover).

CAMPHOR SCALE (*Pseudaonidia duplex*) - FLORIDA - Light on stem of pecans at Deland, Volusia County. (Roberts, Sept. 3).

WALNUT CATERPILLAR (*Datana integerrima*) - ALABAMA - Several groups of approximately 100 each feeding on walnut and pecans in Perry, Choctaw, Mobile and Dallas Counties. (Seibels, Sexton, Deavours, et al.).

SPINY OAKWORM (*Anisota stigma*) - ALABAMA - Few larvae feeding on pecans in Choctaw County. (McQueen).

HICKORY SHUCKWORM (*Laspeyresia caryana*) - ALABAMA - Heavy in some Stuart pecans; pupation in progress. (Sexton, Deavours).

A SPIDER MITE - GEORGIA - Heavy on pecans in Mitchell County. (Sheffield, Crownover).

Citrus Insect Situation in Florida - Mid-September - On leaves, CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 62 percent of groves (norm 56 percent); 47 percent economic (norm 36 percent). On fruit, CITRUS RUST MITE infested 68 percent of groves (norm 67 percent); 43 percent economic (norm 45 percent). Population will continue above average and in high range. Little change expected statewide and spotty, heavy infestations will be present in all areas. Highest districts Brooksville, Gainesville, Bartow, upper east coast and Orlando. CITRUS RED MITE (*Panonychus citri*) infested 43 percent of groves (norm 38 percent); 16 percent economic (norm 18 percent). Infestations spotty and generally below average. Slight increase expected. Highest districts Orlando and west coast. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 32 percent of groves (norm 19 percent); 17 percent economic (norm 6 percent). Statewide population higher than in prior years, but only few scattered groves have important infestations. Slight increase will occur in October. PURPLE SCALE (*Lepidosaphes beckii*) infested 63 percent of groves (norm 50 percent); 10 percent economic (norm 3 percent). This scale will be more common than in recent years. Few scattered infestations may be important. GLOVER SCALE (*L. gloverii*) infested 55 percent of groves (norm 19 percent); 20 percent economic (norm 1 percent). CHAFF SCALE (*Parlatoria pergandii*) infested 59 percent of groves (norm 30 percent); 13 percent economic (norm 1 percent). Population above average and increasing. YELLOW SCALE (*Aonidiella citrina*) present in about 30 percent of groves and increasing. Important infestations expected in about 3 percent of groves. Yellow spots 0.125 to 0.25 inch in diameter on green fruit often indicate presence of this scale. BLACK SCALE (*Saissetia oleae*) infested 46 percent of groves (norm 34 percent); 21 percent economic (norm 14 percent). Infestations will increase in cold-damaged groves and decrease in others. Statewide population will continue above average but at moderate level. Highest districts ridge and Indian River. FLORIDA RED SCALE (*Chrysomphalus aonidum*) at lowest level on record for September. WHITEFLIES slightly above average and increasing. GRASSHOPPERS more numerous than usual. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

A PINK CITRUS RUST MITE (*Aculus pelekassi*) - FLORIDA - Moderate on leaves of *Citrus reticulata* at Okahumpka and Mascotte, Lake County. (Henderson, Brown, Sept. 11).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - MEXICO - Total of 7,540 inspections of 3,637 traps in States of Chiapas, Yucatan, Veracruz, Tabasco, Guerrero, Tamaulipas, Campeche, Sinaloa and Baja California, the Federal District and Territory of Quintana Roo. All results negative. (PPC, Mex. Reg., Aug. Rpt.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - MEXICO - Total of 11 specimens taken; 3 from traps in Ensenada August 2, and 8 from traps in Tijuana August 1-8. Also in Baja California, in Municipios of Tacate, Ensenada and Tijuana 6,780 trap inspections of 1,615 traps in service on 840 properties made. In Municipios Ensenada and Tijuana, 43,573 trees sprayed on 7,254 properties in area of 4,432 acres. (PPC, Mex. Reg., Aug. Rpt.). CALIFORNIA - Seventh bait spray of season completed in control area; over 3,000 traps in operation in State on United States-Mexican border. Results negative since collection in July. (Cal. Coop. Rpt.).

A FRUIT FLY (Anastrepha striata) - CALIFORNIA - Single male specimen taken in trap in San Ysidro, San Diego County, 0.25 mile north of International Gate. This species not known to be established in Baja Californica, Mexico, and is presumed to have come from contraband material. (Cal. Coop. Rpt.).

ARMORED SCALES - FLORIDA - Pseudaonidia duplex and Parlatoria pergandii light on fruit of Temple oranges at Stanford. (Youtsey, Sept. 12).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Total of 52,817 citrus trees inspected on 31 properties in Municipios Hidalgo, Guemez, Padilla, and Ciudad Vitoria in State of Tamaulipas. Infestations found on 1,326 trees on 19 properties in 3 municipios. None found in Municipio Padilla. At Ciudad Victoria and Mante, Tamaulipas, 171,500 specimens of a parasitic eulophid (Prospaltella opulenta) captured and shipped to La Paz, Baja California; Merida, Yucatan; Huauapan de Leon, Oaxaca; and Apatzingan, Michoacan. Chemical Control Zone - Total of 110,566 citrus trees on 1,528 properties in States of Nuevo Leon and Sonora inspected with negative results. (PPC, Mex. Reg., Aug. Rpt.). TEXAS - Inspections made in Cameron, Dimmit, Hidalgo, Starr and Zapata Counties and in cities of Brownsville and Pharr with negative results. (PPC, South. Reg., Aug. Rpt.).

TRUCK CROP INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Area of known infestation approximately 7 miles long, north to south, and 6 miles wide; potato growers in area east of Samaria, Monroe County, obtained good control but few adults and larvae still present. Mined foliage and injured "green-head" tubers show signs of earlier attack. Larvae found infesting foliage and fruit of eggplant and foliage of horsenettle in area. (Newman, Laser, Proctor, Wagner). OHIO - About 250 acres of potatoes along Michigan-Ohio State line in Lucas County infested. Presently infesting as a leaf miner and by extensive boring within stems and tubers. This pest is not abundant throughout northwestern part of State as reported in CEIR 13(38):1111. (Holdsworth). UTAH - Adults appeared in earliest harvested tubers at Beryl, Iron County. (Knowlton, Sjoblom).

TOMATO HORNWORM (Protoparce quinquemaculata) - MIGHIGAN - Larvae numerous in home gardens in Wayne County; no adults taken in blacklight traps since week ending September 9 when 2 adults taken in Berrien County, 2 in Macomb County, and 1 in Newaygo County. (Kidd, Newman).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Larvae and pupae medium in tomato fruit in Hanford, Kings County. (Cal. Coop. Rpt.).

PEPPER MAGGOT (Zonosemata electa) - PENNSYLVANIA - Light on peppers in Lackawanna County. (Gesell).

THREE-LINED POTATO BEETLE (Lema trilineata) - PENNSYLVANIA - In clusters of 4-5 on potato plants in Cambria County. (Gesell).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Heavy on eggplant in Monroe County. (Hoffman, Proctor). PENNSYLVANIA - Caused heavy damage to tomato plants throughout Bucks County. (Yount, Sept. 1).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Destroying maturing lima beans in isolated home gardens in Chambers and Tallapoosa Counties. (McQueen).

LESSER CORNSTALK BORER (*Elasmoplapus lignosellus*) - ALABAMA - Causing considerable damage to late snap beans in Lee and Tallapoosa Counties; 15-20 percent of plants damaged. (Barwood, Walton, Hagler).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - IDAHO - Larvae very spotted in windrowed bean fields in southeastern Twin Falls County; mostly in fifth instar although occasional third instar encountered. (Douglas, Gibson, Portman).

A COREID BUG (*Leptoglossus oppositus*) - ALABAMA - Now very plentiful on seed pods of many annuals and legumes in Mobile County; 10-25 per plant noted on southern peas in home gardens in Baldwin County. (Seibels, Smallwood, Kleinschmidt).

GRASSHOPPERS - ALABAMA - Various species continue buildup over State; caused considerable damage to 5-acre field of lima beans in Elmore County. (McQueen).

A FLEA BEETLE (*Phyllotreta cruciferae*) - OHIO - Heavy on broccoli near London, Madison County; heavy also in 1962. Det. by G. B. Vogt. (Lyon).

ONION THRIPS (*Thrips tabaci*) - COLORADO - Ranged 50-60 per plant in Montrose County. Harvest underway in many areas and pest not of economic importance. (Bulla).

ONION MAGGOT (*Hylemya antiqua*) - COLORADO - Present on few onions at harvesttime in Montrose County. (Bulla).

CABBAGE LOOPER (*Trichoplusia ni*) - NEW MEXICO - Problem in Dona Ana County lettuce fields; controls necessary. (N. M. Coop. Rpt.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - SOUTH DAKOTA - Adults feeding on squash blossoms in corn field interplanted with squash and pumpkins in Moody County; ranged 30-50 adults per blossom. (Hintz).

MORNING-GLORY LEAF MINER (*Bedellia somnulentella*) - CALIFORNIA - Larvae heavy on sweetpotatoes, mining leaves in San Luis Rey, San Diego County. (Cal. Coop. Rpt.).

SWEETPOTATO HORNWORM (*Agrius cingulatus*) - GEORGIA - Light to moderate on sweetpotatoes in Tift and Colquitt Counties. (Goolsby).

IO MOTH (*Automeris io*) - COLORADO - Noted on raspberries in Arapahoe County. (Hantsbarger).

TOMATO FRUITWORM (*Heliothis zea*) - NEW MEXICO - Problem on lettuce fields in Dona Ana County; controls necessary. (N. M. Coop. Rpt.). COLORADO - Eggs on tomato leaves increasing in numbers in Prowers, Bent, Otero, Crowley and Pueblo Counties. Light trap counts of adults doubled past week at Rocky Ford; totaled 286. (Schweissing).

GREEN PEACH APHID (*Myzus persicae*) - MICHIGAN - Colonies of nymphs and adults still numerous on peppers, eggplant, potatoes, tomatoes and other crops in southern counties. (Proctor, Kidd). UTAH - Moderate on sugar beets at College Ward, Cache County. (Knowlton).

TOBACCO INSECTS

SUCKFLY (*Cyrtopeltus notatus*) - VIRGINIA - Severe on 2.5 acres of flue-cured tobacco in Lawrenceville, Brunswick County. (Tarpley, Maclin, Sept. 13).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Populations building up in most areas since control measures reduced. Not expected to cause much damage this late in season; harvesting started most areas. (Okla. Coop. Sur.). TEXAS - Light to moderate infestations reported from Collingsworth, Childress, Garza, Briscoe, Motley, Dickens, Cottle and eastern portions of Floyd and Crosby Counties. Increased migration noted past week. (Rummel, Owen).

BOLLWORM (Heliothis zea) - TEXAS - Light to moderate infestations reported from Collingsworth, Lubbock, Garza, Floyd, Borden, Cochran, Motley, Childress and Donley Counties. Increased egg laying reported from Borden County. (Rummel, Owen). NEW MEXICO - Spotted, heavy infestations noted in cotton in southern Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Larvae numerous and causing heavy damage in all cotton-growing areas but Cochise County where moderate damage found. (Ariz. Coop. Sur.). CALIFORNIA - Evident in most Kern County fields at very low levels. Some economic infestations reported from McFarland, Delano areas. (Leigh, Sept. 12). Some Tulare County fields still need treatment. (George, Sept. 12).

BOLLWORMS (Heliothis spp., et al.) - GEORGIA - Light to heavy infestations in bolls of cotton in northwest. (Johnson). OKLAHOMA - Heavy populations reported from southwest, south central and central areas of State. (Okla. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - OKLAHOMA - Moderate to heavy populations defoliating cotton in south central, central, southwest, northwest and north central areas, with many fields reported almost completely defoliated. (Okla. Coop. Sur.). TEXAS - Infestations present throughout high and rolling plains and panhandle areas. Good control noted in all areas. (Rummel, Owen). NEW MEXICO - Moderate populations damaging cotton in Bethel area, Roosevelt County. Heavy infestations require controls in southern Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Larvae appearing in scattered areas of Graham County on cotton; 5-6 per plant in most severely infested fields. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light infestations on cotton in northwest area. (Johnson). ARIZONA - Increases found in Eden area of Graham County; 4-5 larvae per plant. Other areas of Graham, Greenlee, Cochise, Maricopa and Pinal Counties indicate decreasing populations. (Ariz. Coop. Sur.). CALIFORNIA - Abundant in many Kern County fields, with possible excessive defoliation in late-maturing cotton. Moth flight heavy at present. (Leigh, Sept. 12).

BEET ARMYWORM (Spodoptera exigua) - GEORGIA - Very light infestation on cotton in Pike County. (Johnson). ARIZONA - Scattered infestations being reported in Pinal and Maricopa Counties; 2-3 larvae per plant. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Large populations still occurring in Yuma, Maricopa and Pinal Counties. Sporatic infestations found in Graham, Greenlee and Cochise Counties. (Ariz. Coop. Sur.).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Abundant in Kern County cotton adjacent to rose nurseries. Controls may be necessary where larvae are attacking large bolls. (Leigh, Sept. 12).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Larvae increasing in all cotton-growing areas; 25-35 per 100 plants. (Ariz. Coop. Sur.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Abundant in many Kern County alfalfa fields, with some larvae migrating into cotton and some minor buildup within cotton fields. Controls should not be necessary. (Leigh, Sept. 12).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Present in many Kern County fields, with some severe infestations. Damage to small bolls evident in some cases. Controls may be advisable where pests abundant until about September 20. (Leigh, Sept. 12).

APHIDS - CALIFORNIA - Evident in most Kern County cotton, with some infestations sufficiently severe to justify control. (Leigh, Black; Sept. 12). Infestations found generally over Tulare County; however, east side areas apparently have heaviest populations. (George, Sept. 12). ARIZONA - Infestations of Aphis gossypii remain light to moderate in Graham, Greenlee, Cochise and Maricopa Counties; damage has been light in nearly all areas. (Ariz. Coop. Sur.).

SPIDER MITES - CALIFORNIA - Many fields showing considerable reddening due to these pests; no controls should be necessary. (Leigh, Sept. 12). GEORGIA - Light to moderate infestations on cotton in northwest. (Johnson).

CORRECTIONS

CEIR 13(25):668 - BLUEGRASS BILLBUG (Sphenophorus parvulus) - OHIO - Original determination in error. Should read Sphenophorus minimus. Det. by R. E. Warner. (Rings).

CEIR 13(37):1077 - ORIENTAL FRUIT MOTH (Gropholitha molesta) should read Grapholitha molesta.

CEIR 13(38):HIGHLIGHTS and page 1111 - POTATO TUBERWORM (Gnorimoschema operculella) - OHIO - Delete note. See page 1144 in this issue.

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Weather of the week ending September 23 (Continued from page 1136) eastern portions of Michigan, Ohio, Kentucky, Tennessee, and Georgia to the Atlantic Ocean. Temperatures averaged above normal over the Rocky Mountains, the Plateau, the Plains, and the northern Prairies. At the end of the week, the Pacific Northwest received rains, the Great Basin was mostly sunny, clouds prevailed over the northern and central Great Plains, high pressure with clear cool weather dominated the eastern third of the country, and generous rains continued in Florida. (Summary supplied by U.S. Weather Bureau).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - TEXAS - 403 new Dendroctonus frontalis infestations located on aerial detection flights over portions of Hardin, Jasper, Liberty, Orange, Polk, San Jacinto, Trinity and Tyler Counties; 60 percent of spots consisted of single tree infestations. D. terebrans reported infesting loblolly, longleaf, and slash pines in Angelina, Houston, Jasper, Liberty, Montgomery, Orange, Polk, Sabine, San Jacinto, Shelby, Trinity, Tyler and Walker Counties. D. terebrans severe in some localities within area of current D. frontalis epidemic, and where populations increased through association with other species. Infested trees treated on National Forests. Infestations of Ips avulsus, I. grandicollis and I. calligraphus continued to decline; only small damage observed. (Williamson; Tex. For. Pest Comm., Aug. Rpt.). ARKANSAS - Ips spp. still active in some heavily infested spots; largest area involved is 1,200 trees on 50 acres in western section of State, with scattered infestations in area covering 300 acres. This would be regarded as explosive situation and might easily develop into fast moving epidemic unless cultural practices and weather slow down beetle development. Much smaller spots prevalent in other areas. D. terebrans quite active in recently harvested spots. Seed trees will be most vulnerable to attack and economic loss from this beetle. (Ark. For. Pest Rpt., Sept.). ALABAMA - D. terebrans very active in Marengo County; killed 25 shortleaf and loblolly pines at intersection of State Highways 10 and 69. Larvae, pupae and adults present. (McQueen). Ips spp. damaged 90 percent of young 3-foot pines in a Mobile County nursery. (Seibels, Bolton). FLORIDA - Survey during August showed D. terebrans still active in some naval stores areas, but not to such extent as in 1962. (McCowan). NORTH CAROLINA - D. frontalis increasing at about normal rate for time of year. Almost inactive in Mecklenburg County area where infestation very heavy in 1962. Infestations in Davidson, Randolph and portions of Guilford, Forsyth and Yadkin Counties appear slightly more severe than earlier in 1963. (For. Pest Newsltr.). D. frontalis and Ips spp. infestations noted in Warren and Vance Counties, near Virginia State line; relative abundance will not be known until ground survey made. (Green). Ips calligraphus light on pines at a location in Robeson County. (McIntyre, Mount; Sept. 2). PENNSYLVANIA - Ips pini killing white pine on 35-acre tract in Chester County; many trees damaged by construction activity. (Nichols; Pa. For. Pest Rpt., Aug. 14).

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - NEW YORK - Caused some damage to Scotch and red pine plantings in northern Fulton County. (Northeast. For. Pest Rpt., Sept.).

PINE BARK WEEVILS - PENNSYLVANIA - Hylobius pales heavy on nursery block of Mugho pine in Centre County. (Collacott, Sept. 4). ARKANSAS - Increased activity by H. pales and Pachylobius picivorus observed in late August; probably result of cooler weather. As expected, these weevils most active in burned over areas or recently harvested stands. (Ark. For. Pest Rpt., Sept.).

WHITE-PINE WEEVIL (Pissodes strobi) - Damage continues severe in southern NEW YORK, NEW HAMPSHIRE and MAINE. Heavy attack (over 20 percent current weeviling) continued in west central PENNSYLVANIA counties in unprotected stands; in northern tier of counties, up to 90 percent attack reported in untreated stands. Current weeviling high in northwestern NEW JERSEY, particularly in planted trees and old fields. In southern WEST VIRGINIA (Mercer County), species reported to have increased. (Northeast. For. Pest Rpt., Sept.).

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Assessment of data from pilot test in Oxbow area using material Bacillus thuringiensis still in progress; may not be available until fall or winter. General impression is that material not effective in controlling C. fumiferana on spruce and fir in area. On regular spray project of approximately 500,000 acres, control rated as excellent on pre- and post-spray larval counts. In areas outside spray area, reduction of 35 percent from early to late larval populations occurred. Based on intensive egg mass survey now in progress over entire area, following general observations can be made: Within spray area, only isolated heavy egg mass collections have been made; outside and west of general spray area, egg mass numbers in 1963 declined in comparison with previous year's data, but more sampling may change situation; in Oxbow area, where B. thuringiensis test conducted, current defoliation of spruce and fir heavy, as well as egg mass numbers; isolated area of infestation in Bancroft area, well south of general infestation, appears to be declining. (Northeast. For. Pest Rpt., Sept.).

AN OLETHREUTID MOTH (Eucosma gloriola) - PENNSYLVANIA - Causing more widespread concern on white and Scotch pine plantings. Distribution probably statewide. Moderate to heavy infestations noted during July in Butler, Adams, Bedford and Susquehanna Counties. (Kelly, Stewart, Nichols; Pa. For. Pest Rpt., Aug. 14). In Mercer County (western area), 10 percent of pines in white pine plantation attacked. Species relatively new to this area of State. NEW JERSEY - Damage by insect tentatively determined as this species, found in hybrid white pine in experimental plantation at Washington Crossing State Park. (Northeast. For. Pest Rpt., Sept.).

SPRUCE NEEDLE MINER (Taniva albolineana) - CALIFORNIA - Locally heavy on blue spruce in Susanville, Lassen County. Species subject to eradicative treatment. (Cal. Coop. Rpt.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - WEST VIRGINIA - Found in Scotch pine plantations in Boone and Mercer Counties. This believed to be first record for State, although recorded for some of surrounding States. (Northeast. For. Pest Rpt., Sept.).

LARCH CASEBEARER (Coleophora laricella) - RHODE ISLAND - Damage very minor this year in several larch plantations under observation. (Northeast. For. Pest Rpt., Sept.).

A PINE LOOPER (Lambdina athasaria pellucidaria) - MASSACHUSETTS - Adult emergence from overwintering pupae occurred about mid-June on Cape Cod; oviposition shortly thereafter. Eggs and young larvae observed on old pitch pine needles July 2. Infestation general throughout Barnstable County; heavy defoliation expected in Dennis, Truro, Mashpee and Falmouth. Application of Bacillus thuringiensis planned for early September if infestation persists; presently appears to be declining due to natural causes. (Northeast. For. Pest Rpt., Sept.).

TIP MOTHS - ARKANSAS - Activity generally spotty; damaging populations very local. Scattered summer rains favored tree growth in mid and late summer, thus trees tolerated attack better than in absence of good growth. (Ark. For. Pest Rpt., Sept.).

BALSAM WOOLLY APHID (Chermes piceae) - NORTH CAROLINA - Caused additional mortality to Fraser fir stands in Mt. Mitchell and Balsam Gap areas. Large scale outbreaks discovered on Roan Mountain and Grandfather Mountain and in Great Smoky National Park; located during survey by U. S. Forest Service. (For. Pest Newsltr.).

A PINE LEAF APHID (Pineus pinifoliae) - MAINE - Continues serious on white pine in eastern area. In northern Aroostook County, crooked-shaped pine branches, characteristic of damage by this species, noted in area near Oxbow. NEW HAMPSHIRE - Tips of white pine beginning to droop and die in nearly all areas where red spruce found in proximity to white pine. NEW YORK - In Hamilton County, new growth on pine being killed; also reported as heavy on white pine in northern Herkimer County. Heavy but local infestation reported in township of Parishville. (Northeast. For. Pest Rpt., Sept.).

A PINE APHID (Essigella pini) - PENNSYLVANIA - Caused severe defoliation of all except current year's growth on 60 acres of Scotch pine in Fayette County (Sept. 10); abundant on some Scotch pines in Indiana County, on all needles, but old needles yellow and dropping (Sept. 14). (Udine).

A RED-PINE SCALE (Matsucoccus resinosae) - NEW JERSEY - Surveys continue in northern part of State in area where eradication attempted. No further infestations found. (Northeast. For. Pest Rpt., Sept.).

PINE SAWFLIES (Neodiprion spp.) - PENNSYLVANIA - N. lecontei lightly defoliated red pine in Potter County. (Kane). Controls to be applied. (Pa. For. Pest Rpt., Aug. 14). N. lecontei heavy on few Mugho pines at Tunkhannock, Wyoming County. (Andreychik, Aug. 9). In Monroe County, virus common to N. sertifer used to suppress outbreak. NEW JERSEY - Populations of N. sertifer very low in northern half of State where previous damage heavy. Moderately infested plantation successfully treated with disease-causing virus of this pest. N. pratti paradoxicus and N. pini-rigidae also rare this spring in southern area, where both proved damaging in past as part of complex attacking pitch pine. MARYLAND - Full-grown N. lecontei larvae found in Garrett County. WEST VIRGINIA - Full-grown larvae of N. lecontei also found in Grant County. In adjoining Hardy County, larvae full grown by mid-September 1962. VIRGINIA - Adults and larvae of N. lecontei found August 6 in several young shortleaf pine plantings (2-5 feet tall) on Clinch Ranger District, Jefferson National Forest; some newly emerged larvae also found. Due to altitude and terrain, only one late generation occurs in area. N. pratti pratti lighter this year than in 1962. (Northeast. For. Pest Rpt., Sept.). ARKANSAS - Adult emergence of N. taedae linearis will begin in late September and early October. Foresters should watch for egg deposition in pine stands bordering areas defoliated past spring; this will provide indication of possible spread of this pest. No recent activity by N. lecontei noted. (Ark. For. Pest Rpt., Sept.). FLORIDA - Surveys during August showed N. excitans outbreaks deteriorated to endemic levels, with little or no tree mortality occurring in any area. (McCowan).

LARCH SAWFLY (Pristiphora erichsonii) - MAINE - In Washington County, where defoliation recorded on 28 numbered trees on study plot, current defoliation light; but somewhat heavier defoliation of larch noted in areas toward coast. NEW YORK - Heavy defoliation of planted European larch on Tombannock Reservoir, Rensselaer County, reported; in town of Greenwood, Steuben County, 50-60 acre Japanese larch plantation heavily defoliated. (Northeast. For. Pest Rpt., Sept.). PENNSYLVANIA - Caused moderate to heavy defoliation of Japanese and European larch in portions of Indiana, Lycoming and Clinton Counties. (Herman, Miller, Walker; Pa. For. Pest Rpt., Aug. 14).

ELM LEAF BEETLE (Galerucella xanthomelaena) - CALIFORNIA - Larvae medium on elms in Coalinga, Fresno County. (Cal. Coop. Rpt.). ARKANSAS - Populations forced to American elms in northwest area, as Chinese elms completely defoliated at time of third-generation emergence. Beetles will move into homes and other buildings soon to hibernate; probably cause much concern because of large numbers. (Ark. For. Pest Rpt., Sept.). ALABAMA - Continues to damage elms in Lee, Macon, Autauga and Perry Counties; however, attack possibly not as severe as previously reported. Heavy pupation noted about some elms in Perry County. (Hairston et al.). OHIO - Moderate to heavy damage noted on 5 elms in Miami County, west central. Trees half to three-quarters skeletonized; only adults present. (Lyon).

LOCUST LEAF MINER (Xenochalepus dorsalis) - PENNSYLVANIA - Caused 90 percent defoliation of black locust over small area of Fayette County. (Kurtz). Infestations in 1963 much reduced over severe defoliation of 1962. (Pa. For. Pest Rpt., Aug. 14).

ELM BARK BEETLES - NORTH CAROLINA - Scolytus multistriatus collected from elm in Forsyth County. This is a new county record. (Harmon, Farrier). ARKANSAS - Dutch elm disease found in Benton, Boone, Fulton and Searcy Counties this summer; this leaves only Baxter and Marion Counties, in northern tier, in which disease has not been found. (Ark. For. Pest Rpt., Sept.).

TWIG GIRDLER (Oncideres cingulata) - NEBRASKA - Twigs dropping from trees in Lincoln, Lancaster County. (Bergman). OKLAHOMA - Active in Stillwater area, Payne County (north central). (Okla. Coop. Sur.).

LOCUST BORER (Megacyllene robiniae) - NEBRASKA - Damaging locust trees in Swanton, Saline County. (Bergman).

A CERAMBYCID BEETLE (Glycobius speciosus) - PENNSYLVANIA - Active and girdling sugar maples over several acres of northern hardwoods in McKean, Crawford, Tioga and Susquehanna Counties. (Berglund; Pa. For. Pest Rpt., Aug. 14).

ELM CALLIGRAPHA (Calligrapha scalaris) - SOUTH DAKOTA - Adults feeding on sap draining from cankers on Chinese elm trees at Winner, Tripp County. Several trees have died, but this can not be solely attributed to these beetles. (Hintz).

ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) - OHIO - Light populations observed in Adams and Scioto Counties. (Mowbray, Blair).

A LEAF-MINING WEEVIL (Odontopus calceatus*) - NEW JERSEY - Single adult found August 1 on yellow-poplar in Warren County; several leaves mined by larvae also found in same area. Significance of find not clear; area to be watched closely. (Northeast. For. Pest Rpt., Sept.).

CARPENTERWORM (Prionoxystus robiniae) - NORTH DAKOTA - Larval damage reported from over State. Hosts are poplar and ash in yards and shelterbelts. (N. D. Ins. Sur.).

AMERICAN DAGGER MOTH (Acronicta americana) - NEVADA - Larvae light on silver maple (Acer saccharinum) in Reno, Washoe County. (Gallaway).

CATALPA SPHINX (Ceratomia catalpae) - OHIO - Larval populations failed to develop on catalpas throughout southwest this year. Complete defoliation of catalpas occurred in area at this date in 1962. (Wells). MICHIGAN - Larvae causing local damage in Ingham County. (Dowdy).

FALL WEBWORM (Hyphantria cunea) - PENNSYLVANIA - Black cherry apparently main host in west central counties. Hatching date in area estimated as late July, about one month later than in mountains of western Virginia. Infestations apparently decreased in western Pennsylvania from levels of 1962. NEW JERSEY - Infestations less abundant than in 1962. VIRGINIA - Adults and egg masses first noted June 24 on hickories and basswood along Blue Ridge Parkway; newly emerged larvae observed few days later. Larval webs encasing several leaves noted by mid-July. Cool weather in Blue Ridge Mountains prolonged development along Parkway. Early insect activity confined to hickories and basswood, but webs later found on black cherry, sourwood, blackgum and black walnut. Localized, heavy infestations along Blue Ridge Parkway sprayed in mid-July; adequate control obtained. (Northeast. For. Pest Rpt., Sept.). ARKANSAS - Infestations much heavier than usual across northwest part of State; large areas of persimmon, walnut, hickory and pecan trees completely defoliated this summer. (Ark. For. Pest Rpt., Sept.).

FALL CANKERWORM (Alsophila pometaria) - PENNSYLVANIA - Heavy populations destroyed by late freezes that also killed hardwood foliage. Larvae that escaped freezing probably died of starvation. NEW JERSEY - Common and abundant in west central counties; some areas nearly completely defoliated. At Ring Manor State Park, Passaic County, hundreds of large (18 to 24-inch d.b.h.) red and black oaks died this year following heavy defoliation in 1962. WEST VIRGINIA - Rare, due at least in part to late freezes that destroyed insects and foliage. (Northeast. For. Pest Rpt., Sept.).

SPRING CANKERWORM (Paleacrita vernata) - MASSACHUSETTS - Controls applied to 11,325 acres of woodland south of Boston in May and June. NEW YORK - Infestations appear to be declining in Rockland and Ulster Counties. PENNSYLVANIA - Light infestations in northern and southeastern counties made generally lighter by late spring freezing temperature; however, late developing infestation causing moderate defoliation found in northern McKean County. A geometrid moth (Operophtera bruceata) may be component of infestation. MARYLAND - Oaks heavily defoliated in 1962 and 1963 in Bachmans Valley, Carroll County, reported being attacked by buprestid beetles. WEST VIRGINIA - Only occasional larvae found; rareness of species due at least in part to late freeze. (Northeast. For. Pest Rpt., Sept.).

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* Previously carried in CEIR as Prionomerus calceatus. Originally described as Odontopus calceatus by Say.

FOREST TENT CATERPILLAR (Malacosoma disstria) - MAINE - Defoliated poplar in area south of Caribou, Aroostook County. PENNSYLVANIA - Only few caterpillars observed, without defoliation, in Clarion, Clearfield and Mercer Counties, western area. Frost in late May at least partly responsible for low populations. NEW JERSEY - Investigation of heavily defoliated 100-acre area in Salem County (southwest) showed approximately 35 percent of pupae parasitized. Light infestation found on 2-acre oak stand in Hunterdon County, west central. (Northeast. For. Pest Rpt., Sept.).

LINDEN LOOPER (Erannis tiliaria) - VERMONT - Comonly found associated with gypsy moth (Porthetria dispar) in Bennington County. MASSACHUSETTS - General infestations declining throughout State. As expected, heavy hatch occurred about May 1, but disease and parasites quite effective in reducing larval populations. NEW YORK - Hardwoods being defoliated in Hamilton County from town of Long Lake north to county line; noted as abundant in towns of Hope and Wells and caused some annoyance to people using picnic areas on Lake Durant and Lewey Lake. At Lake Eaton, campsite treated June 12 to prevent damage. Beech and birch apparently suffer most from defoliation in Hamilton and northern Fulton Counties. Light defoliation recorded in townships of Clifton, Colton, Fine and Piercefield in Andirondack Mountains. Defoliation also noted in Osceola, Highmarket, Montague and Worth in Jefferson and Lewis Counties. PENNSYLVANIA - Heavy larval numbers nearly eliminated by late spring freeze. (Northeast. For. Pest Rpt., Sept.).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Larvae defoliating pin oaks in Stillwater area, Payne County (north central); also feeding in Shawnee area, Pottawatomie County (central). (Okla. Coop. Sur.).

AN OAK LEAF ROLLER MOTH (Argyrotoxa semipurpurana) - PENNSYLVANIA - Heavy populations, chiefly this species, expected to cause heavy defoliation, failed to survive late spring freeze. NEW JERSEY - Defoliation to nearly 100 percent found in north central area, where populations were common and abundant. Other spring defoliators minor components of populations. Refoliation has masked damage of heavily defoliated trees. (Northeast. For. Pest Rpt., Sept.).

CHAIN-SPOTTED GEOMETER (Cingilia catenaria) - PENNSYLVANIA - Outbreak developed over approximately 50 acres in Monroe County; trees and shrubs completely defoliated, including scrub oak, pin cherry, pitch pine, blueberries and sweetfern. (Denniston; Pa. For. Pest Rpt., Aug. 14).

GYPSY MOTH (Porthetria dispar) - MAINE - Two adults captured in Northfield and single collections made from traps in Alexander and Plantation 14 E. D., Washington County. NEW HAMPSHIRE - Large number of egg parasites observed in Red Hill section of Moultonboro; up to 5 parasitic flies per single egg mass. VERMONT - Single collections made in Bakersfield, Enosburg and Montgomery, Franklin County, and in Cambridge and Hyde Park, Lamoille County. NEW YORK - Three traps yielded 9 males in Brownville, Jefferson County, south and southwest of area treated last spring. At site 1.5 miles from treated area, 100 or more new egg masses found. In other areas outside of regulated area, adults recovered from 7 traps in 3 towns in Franklin County and 15 traps in 2 towns in Hamilton County. In suppressive area of State, 291 traps in Orange County, 57 traps in Rockland County and 148 traps in Westchester County attracted 1,027 adults. In Nassau County, 21 traps yielded 35 specimens and, in Sullivan County, 38 traps attracted only 61 moths. Only 2 moths captured in suppressive area in central New York; one each in Oneonta and Exeter townships, Otsego County. Intensity of recoveries in southern area of State reveals serious spread from generally infested areas to north and east. PENNSYLVANIA - Total of 21 males recovered from 12 traps in Northampton, Monroe and Pike Counties; egg clusters found at 3 of 5 sites in Northampton County. (PPC, East. Reg., Aug. Rpt.).

BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) - NEW HAMPSHIRE - Four adults trapped at Hooksett and 1,443 (1,356 males and 87 females) trapped at Loudon, Merrimack County; winter webs clipped and destroyed at Hooksett site last spring. (PPC, East. Reg., Aug. Rpt.).

GEOMETRID MOTHS - PENNSYLVANIA - Moderate numbers of *Calocalpe undulata* causing moderate "flagging" on all black cherry over 100 acres in Union County. (Miller; Pa. For. Pest Rpt., Aug. 14). *C. undulata* nearly absent on black cherry in west central area, where sufficiently abundant in 1962 to cause browning of hillsides. (Northeast. For. Pest Rpt., Sept.). VIRGINIA - *Phigalia titea* caused heavy defoliation of hardwoods, mostly oaks, in Lee Ranger District, George Washington National Forest, in 1962 and 1963. Peak adult emergence in 1963 occurred March 23-26, and egg hatch on or very close to April 3. Initially, only available food was green tissue of barely opened buds of bushes and trees in understory, mainly blueberry and hickory; these supported large number of small larvae, but great numbers died from failure to reach food. Continued warm weather resulted in increased food supply and *P. titea* larvae that survived on buds heavily defoliated stand. (Northeast. For. Pest Rpt., Sept.).

NORWAY-MAPLE APHID (*Periphyllus lyropictus*) - OHIO - Moderate to heavy on maples in Wayne, Stark and Summit Counties, northeast. Ranged 6-8 stem mothers and 30-40 nymphs per leaf on infested trees. Premature leaf drop prevalent in most instances. (Neiswander, Lyon). ALABAMA - Ranged 25-100 per leaf on ornamental maple in Marion and Perry Counties; causing 50 percent leaf drop. (Hairston).

BEECH BLIGHT APHID (*Prociphilus imbricator*) - NORTH CAROLINA - Infestations much lighter this season than previous 2 years in local area of Wake County. (Graham).

SYCAMORE LACE BUG (*Corythucha ciliata*) - MICHIGAN - Adults and nymphs still common on sycamores discolored earlier in Ingham County. (Evans).

HACKBERRY-NIPPLE-GALL MAKER (*Pachypsylla celtidismamma*) - COLORADO - Numerous on hackberry trees in Sedgwick County. (Hantsbarger).

AN OAK PIT SCALE (*Asterolecanium minus*) - PENNSYLVAINA - Caused dying of chestnut oak over 1,000 acres in Cameron County; incidence of infestation increasing. (Sevinsky). As reported in 1962 and 1963, this species again on increase in State over many areas. Trees suffering severe dieback probably will not survive, especially in view of dry weather. Trees should be salvaged if possible before they become infested with wood borers. (Pa. For. Pest Rpt., Aug. 14). In Lancaster and York Counties (southeast), thousands of chestnut oaks died in 1963. This species believed to be major force in complex of unfavorable events and agents resulting in widespread mortality. (Northeast. For. Pest Rpt., Sept.).

BIRCH LEAF MINER (*Fenusa pusilla*) - MAINE - Current damage apparently not as severe in southern area as in 1962. NEW HAMPSHIRE - In northern section, heavy damage occurred on much of the birch in Littleton-Franconia area for second year. Elsewhere in NEW ENGLAND, pest commonly reported. NEW YORK - Browning of white and gray birch has been particularly noticeable. (Northeast. For. Pest Rpt., Sept.). PENNSYLVANIA - Medium to Heavy on white birch in Columbia County nurseries. (Collacott, Aug. 9).

A LEAF MINER - ARIZONA - An undetermined species defoliating cottonwood trees in Yuma County. (Ariz. Coop. Sur.).

BAGWORM (*Thyridopteryx ephemeraeformis*) - PENNSYLVANIA - Very abundant and causing considerable defoliation of ornamentals in Dauphin-Cumberland County area. Questionable if treatment this late will give satisfactory control. (Nichols; Pa. For. Pest Rpt., Aug. 14). MARYLAND - Larvae caused heavy injury to several arborvitae at Adamstown, Frederick County. (U. Md., Ent. Dept.).

AZALEA CATERPILLAR (*Datana major*) - NORTH CAROLINA - Larvae caused extensive damage to azaleas in Bladen County. (Davis, Robertson; Sept. 13).

MIMOSA WEBWORM (*Homadaula albizziae*) - OHIO - Moderate on honeylocust trees throughout west central and southwest areas. (Lyon).

A NOTODONTID MOTH (*Schizura ipomeae*) - OKLAHOMA - Causing limited defoliation of roses in Stillwater area, Payne County (north central). (Okla. Coop. Sur.).

A WEBWORM (*Loxostege* sp.) - ALABAMA - Very heavy on marigolds and completely enveloped many flowers in gardens in Mobile County; also appearing on clovers. (Seibels).

BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) - PENNSYLVANIA - Light to medium on taxus nursery stock in Sunbury, Northumberland County (Collacott, Sept. 15); killing 18 to 24-inch taxus stock in nursery in Cambria County (Udine, Sept. 14). MICHIGAN - Adults present on yew in Presque Isle County. (Butcher).

A FLEA BEETLE (*Epitrix brevis*) - MARYLAND - Adults heavily injured Chinese lanternplants in an Adamstown garden, Frederick County. (U. Md., Ent. Dept.).

APHIDS - MICHIGAN - *Pterocomma smithiae* adults and nymphs numerous on ornamental willows in Ingham and Kent Counties. (Gedda). Nymphs and adults of various species numerous on some sugar maples and other ornamentals in Ingham and Wayne Counties. (Kidd). OHIO - Populations of undetermined species building up in east central areas. (Easterling, Blair). CALIFORNIA - *Lachnus salignus* adults heavy on willows in Loyalton, Plumas County. (Cal. Coop. Rpt.).

AZALEA LACE BUG (*Stephanitis pyrioides*) - GEORGIA - Heavy on azaleas in Tifton area, Tift County. (Ratcliffe, Phillips; Sept. 13).

A LEAF-FOOTED BUG (*Leptoglossus zonatus*) - ARIZONA - Damaging backyard plantings of pomegranates in Pinal County. (Ariz. Coop. Sur.).

COCCIDS - PENNSYLVANIA - *Neolecanium cornuparvum* heavy on magnolia in a block in Montgomery County nursery August 12 (Cole); crawlers present on magnolia in Centre County September 3 (Collacott). *Lecanium fletcheri* heavy on 1-acre block of taxus in Bradford County nursery. (Andreychik, Aug. 15). *Aspidiotus hederae* ranged medium to heavy on English ivy in greenhouse at Quarryville, Lancaster County. Det. by G. B. Sleesman. (Negley, Aug. 22). *Lepidosaphes yanagicola* heavy on euonymus at State park at Presque Isle, Erie County. (Wolff, Aug. 18). NORTH CAROLINA - *Eriococcus azaleae* infested azaleas in Orange County. (Robertson, Aug. 28). FLORIDA - *Pseudaonidia clavigera* moderate on *Camellia* sp. at St. Petersburg, Pinellas County. (Bingaman, Sept. 11). *Aspidiotus spinosus* light on stem of *Camellia japonica* at Tampa, Hillsborough County. (Hale). MICHIGAN - *Unaspis euonymi* crawlers numerous on infested plants in Lower Peninsula area. (Hoffman). CALIFORNIA - *Dactylopius indicus* heavy on opuntia cactus in Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

APPLE MAGGOT (*Rhagoletis pomonella*) - MICHIGAN - Adults of strain infesting crab apple trees on Michigan State University campus still common; 5 females and 18 males collected with aspirator in 15 minutes on September 19; pairs still observed mating; females noted ovipositing; dissected females contained egg masses. (Dowdy).

LEAF MINER FLIES - WISCONSIN - Phytomyza atricornis numerous in greenhouse in Milwaukee County. (Wis. Ins. Sur.). CALIFORNIA - Melanagromyza viridis medium in zinnia leaves and stems in San Dimas, Los Angeles County. (Cal. Coop. Rpt.).

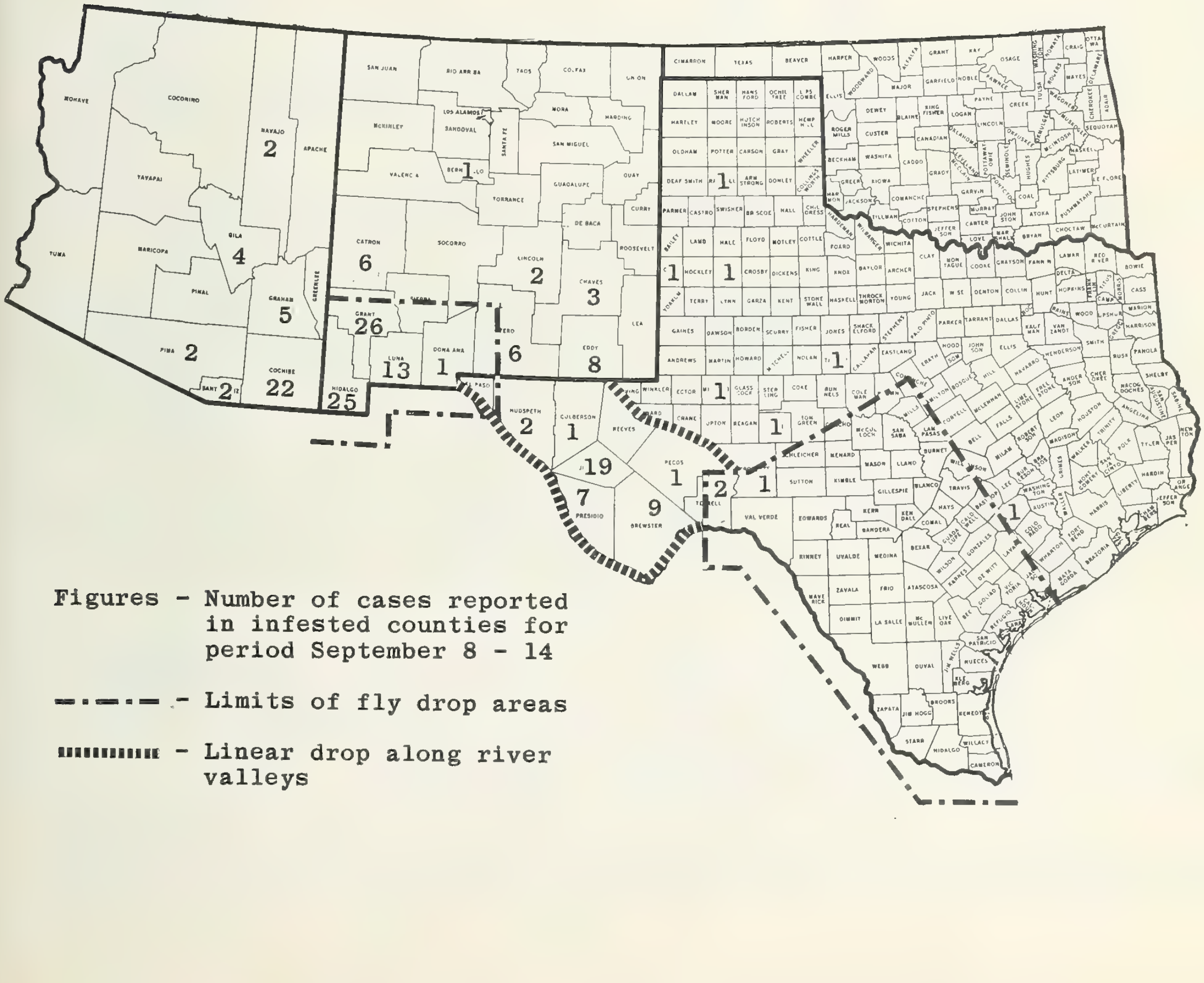
TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on fan palms in El Centro, Imperial County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - ARIZONA - In Casa Grande area, Pinal County, 3 cases treated. Indications are that fewer cases exist this year than is normal for season. (Ariz. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period September 8 - 14, a total of 49 infestations was reported from TEXAS; 92 from NEW MEXICO; and 37 from ARIZONA. Specimens were reported from 15 counties in Texas, 10 counties in New Mexico and 6 counties in Arizona. A total of 123,155,850 sterile flies was released during the period August 8 - 14. (Anim. Dis. Erad. Div.).


Figures - Number of cases reported in infested counties for period September 8 - 14
▬ · ▬ · ▬ - Limits of fly drop areas
▮▮▮▮▮▮▮▮ - Linear drop along river valleys

HORN FLY (Haematobia irritans) - ALABAMA - Ranged 200-300 per animal on herd in Perry County under poor management. None found on animals examined in Perry and Elmore Counties where control programs good. (McQueen). OKLAHOMA - Heavy on cattle in north central areas, with up to 1,500-2,000 per head on cows in Kay and Noble County area. Counts per head in Stillwater area (Payne County) ranged 1,500-1,600 on steers, 1,000-1,200 on dairy cattle and over 3,000 on bulls. Moderate to heavy counts also reported from southeast, south central, central and northeast areas. (Okla. Coop. Sur.). MISSOURI - Populations extremely high on untreated cattle in north central and northeast areas. (Wingo). NEBRASKA - Averaged approximately 250 per beef animal on Custer County rangeland. (Bergman).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Heavy on animals in Pushmataha County (southeast); averaged 8 per head. Averaged 2 per animal in low places in Stillwater area, Payne County (north central). (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - WISCONSIN - Populations continue high in Bayfield County. Reported annoying humans in Iowa County. (Wis. Ins. Sur.). OHIO - Heavy on several beef herds in Brown County, southwest. Heaviest counts 75-100 per face. (Wells). MISSOURI - Counts higher on cattle in north central area than any previous counts this summer. Counts on 4 herds in area as follows: 2-15, average 7.4; 0-7, average 1.8; 0-10, average 4.7; 0-21, average 5.6. (Wingo). IDAHO - Not found on horses, cattle or sheep at 69 roadside locations in 14 eastern and southern counties surveyed. (Portman).

HOUSE FLY (Musca domestica) - OHIO - Populations heavy at homes, livestock barns and other buildings throughout many southwest areas. (Wells). OKLAHOMA - Heavy on refuse pile in a Kay County locality. Flies moving into buildings and sheltered areas seeking winter quarters. (Okla. Coop. Sur.). WYOMING - Becoming annoying to homeowners in many areas by entering homes. (Marks). UTAH - Very numerous about a mink farm and a dairy farm at Perry, Box Elder County. Annoying in and about homes west of Ogden, Weber County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - ALABAMA - Annoying to fishermen and surf bathers at Dauphin Island, Mobile County, since September 1. (Seibels).

MOSQUITOES - ARIZONA - Culiseta inornata continues to increase in Yuma County; becoming serious nuisance to homeowners. (Ariz. Coop. Sur.). NEW MEXICO - Unspecified species very annoying to residents in many sections of Las Cruces, Dona Ana County. (N. M. Coop. Rpt.). UTAH - Unspecified species causing some annoyance in fields and meadows in Perry-Willard area of Box Elder County. (Knowlton). TEXAS - Light, widespread populations occurring in Lubbock County as follows: Culex tarsalis 53 percent; Culex pipiens quinquefasciatus 31 percent. (Breedlove). During July, Psorophora confinnis was common throughout Jefferson County, occasionally becoming numerous; Anopheles spp. present in northern portion of county. (Jefferson Co. Mosq. Cont. Comm.; July Rpt.). NORTH CAROLINA - Anopheles quadrimaculatus and Anopheles punctipennis averaged 28 per dip in lake near Lexington, Davidson County; ratio of 2 species, 27 to 7. (Ashton, Sept. 13).

PUSS CATERPILLAR (Megalopyge opercularis) - OKLAHOMA - Causing considerable concern in eastern two-thirds of State. (Okla. Coop. Sur.). NORTH CAROLINA - Contact with this species caused severe reaction in woman in Wake County. (Wray). Caused severe pain to another woman in Wilson County. (Robertson).

SADDLEBACK CATERPILLAR (Sibine stimulea) - NORTH CAROLINA - Caused considerable irritation to young woman in Wake County. (Wray).

HONEY BEE (Apis mellifera) - MICHIGAN - Nuisance colonies common in dwellings and trees in Sanilac, Shiawassee and Ingham Counties. (Petrilli).

HORNETS AND WASPS - WISCONSIN - Unspecified hornets causing some concern in Vilas County. Vespa spp. annoying in picnic areas, being particularly attracted to meat. (Wis. Ins. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - ARIZONA - Exceedingly heavy in Casa Grande and Coolidge areas of Pinal County. (Ariz. Coop. Sur.).

EAR TICK (Otobius megnini) - NORTH CAROLINA - Removed from ear of girl in Pitt County; person recently returned from Southwest. Det. by W. G. Bruce. (Mount, Sept. 13).

HOUSEHOLD AND STRUCTURAL INSECTS

CRICKETS - ALABAMA - Gryllus spp. invaded city of Demopolis; downtown sidewalks in many places with 2-10 per square foot. Emerging from cellars, vents and other hiding places. Hundreds hopping and flying, moving under doors and invading business establishments and in display windows. A ground beetle (Calosoma sp.) and American cockroach (Periplaneta americana) feeding on dead and injured crickets. (McQueen). MICHIGAN - Adults and nymphs of undetermined field crickets more numerous than during other years in many areas of Lower Peninsula. Reports of adults invading homes and numbers of insects per house much more numerous than usual in September. (Terry, Kidd). WISCONSIN - Gryllus spp. particular nuisance in Walworth and Waukesha Counties. (Wis. Ins. Sur.). ARIZONA - Gryllus spp. becoming problem in homes and business establishments throughout State. (Ariz. Coop. Sur.). COLORADO - Field crickets numerous in homes in Otero and Mesa Counties. (Jenkins, Bulla).

WILLOW FLEA WEEVIL (Rhynchaenus rufipes) - RHODE ISLAND - Infesting trees and climbing house foundations in Narragansett, Washington County. (Mathewson).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MICHIGAN - Annoying in homes. (Scheibner, Kidd).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Adults continue converging on buildings near fields in Middletown area, Washington County. (Peabody).

ELM LEAF BEETLE (Galerucella xanthomelaena) - COLORADO - Nuisance around home in Mesa County. (Bulla). OKLAHOMA - Movement into homes and other sheltered areas causing some concern; will continue throughout coming months. (Okla. Coop. Sur.).

YELLOW MEALWORM (Tenebrio molitor) - MICHIGAN - Annoying in homes. (Scheibner, Kidd).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Causing some concern in Stillwater area homes, Payne County. (Okla. Coop. Sur.).

ANTS - MICHIGAN - Flying forms annoying in homes. (Scheibner, Kidd). RHODE ISLAND - Emergence of Acanthomyops interjectus winged forms noted around house foundations in Warwick, Kent County. (Cartier).

BOXELDER BUG (Leptocoris trivittatus) - COLORADO - Moving into homes in Weld, Jefferson and Larimer Counties. (Hantsbarger). MICHIGAN - Complaints from homeowners indicate adults and nymphs becoming troublesome as household invaders in many areas of Lower Peninsula. (Hoffman, Henry, Kidd). VIRGINIA - Creating nuisance in home in Lexington, Rockbridge County. (Tarpley). PENNSYLVANIA - Becoming nuisance in homes in Dauphin County. (Simons).

SPRINGTAILS - COLORADO - Nuisance around homes and farmsteads in Larimer, Weld and Pueblo Counties. (Hantsbarger, Haines).

CLOVER MITE (*Bryobia praetiosa*) - COLORADO - Moving into homes in Weld, Jefferson and Larimer Counties. (Hantsbarger).

STORED-PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - NORTH DAKOTA - Appearing in newly stored grain in southeast. (N. D. Ins. Sur.).

BLACK CARPET BEETLE (*Attagenus piceus*) - NORTH DAKOTA - Larvae and adults noted in grain storage establishments at Minot. (N. D. Ins. Sur.).

RED FLOUR BEETLE (*Tribolium castaneum*) - NEVADA - Heavy in stored barley near Lovelock, Pershing County. (Ferraro).

Stored Grain Insects in Alabama - *Tenebroides mauritanicus*, *Tribolium confusum*, *Oryzaephilus surinamensis*, *Rhyzopertha dominica* and *Lasioderma serricorne* found in abundance during warehouse inspections in Mobile County. (McQueen).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - *Chilocorus stigma* most conspicuous predator of black pecan aphid (*Melanocallis caryfoliae*) where present on pecans. (Deavours, Sexton, et al.). *Coccinella novemnotata* feeding on pea aphid (*Acyrthosiphon pisum*) in Elmore County. *Hippodamia convergens* very plentiful and feeding on aphids infesting cotton; few *H. glacialis* noted in Lee County cotton. *Coleomegilla maculata fuscilabris* common and second in importance to *H. convergens* in cotton and grain sorghum; both species feeding on corn leaf aphid (*Rhopalosiphum maidis*) infesting grain sorghum. (McQueen). WYOMING - Adults of several species averaged 32 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

A PUNCTURE-VINE WEEVIL (*Microlarinus lareynii*) - UTAH - Infesting numerous seeds of puncture-vine where released at Perry, Box Elder County. (Knowlton, Allred).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Adults averaged 36 per 100 sweeps in alfalfa in Fremont, Washakie, Hot Springs and Big Horn Counties. (Marks).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (*Popillia japonica*) - Intensive foliage treatment at Port Erie Airport, PENNSYLVANIA, during August prevented hazardous conditions. No treatments needed at Stewart Air Force Base, NEW YORK, for first time in several seasons. Very little infestation noted in NEW JERSEY at airports treated during previous control operations. (PPC, East Reg., Aug. Rpt.). Trapping discontinued in MICHIGAN in most locations. Some collections made in new locations outside of treated area in Monroe and Lenawee Counties. Infestations now known in Battle Creek, Ypsilanti, Grand Rapids, Flint and new spot locations within Detroit area. Some mist blowing used to reduce heavy populations in certain areas in Battle Creek. Peak flight reached August 4-10 in OHIO. Adults found for first time at Greenville and Smithboro, Bond County, at Salem, Marion County, and at Vandalia, Fayette County, ILLINOIS. Most trapping being discontinued. (PPC, Cent. Reg., Aug. Rpt.). OHIO - Adults still observed in Huron County, north central, and Portage County, northeast; 2 traps in Huron County yielded 9 live adults. (Wolfe). TENNESSEE - Adults trapped in new areas in Carter, Cocke, Hawkins, Jefferson, Johnson, Knox, Polk and Sullivan Counties but no infestations heavy. (PPC., South. Reg., Aug. Rpt.). NORTH DAKOTA - Trapping negative during season. (N. D. Ins. Sur.). NEVADA - Adult trapping surveys negative for 1963 in Clark, Elko and Washoe Counties. (Coop. Rpt.).

EUROPEAN CHAFER (*Amphimallon majalis*) - Collected for the first time at Southington, Hartford County, CONNECTICUT; at Batavia, Genesee County, Cortland, Cortland County, and Plattsburgh, Clinton County, NEW YORK; and in Erie, Erie County, PENNSYLVANIA. Extensions of known infestations found in Cayuga, Niagara and Schuyler Counties, New York, and Hudson County, NEW JERSEY. (PPC, East. Reg., Aug. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - Delimiting survey continued in Norfolk, VIRGINIA, and spot checks made throughout remainder of State; specimens at 3 locations in vicinity of Norfolk collected. (PPC, East. Reg., Aug. Rpt.). Intensive surveys made in north and central FLORIDA; heavy infestation found near Tallahassee, Leon County. Found for the first time in Bay County at Panama City. In GEORGIA, new infestations and extensions of old areas found in several counties. New county records include Gwinnett, Whitfield and Worth Counties. Intensive and extensive surveys in ALABAMA resulted in finding of several new infestations including new records for De Kalb and Morgan Counties. Extensions of infestation in Attala County, MISSISSIPPI, found and first find in Webster County recorded. Collected for the first time in East Feliciana Parish, LOUISIANA. Surveys in ARKANSAS revealed several small infestations in known infested counties. Extensions also found in TENNESSEE, none extensive. In the CAROLINAS, extensions or new infestations found in nearly all infested counties. Adults collected for first time in Cabarrus County, NORTH CAROLINA. (PPC, South. Reg., Aug. Rpt.). ALABAMA - Few adults feeding on courthouse lawn in Choctaw County. (Deavours, Sexton).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - Extensions or new infestations found in many previously infested counties of FLORIDA; few mounds still active in treatment blocks. Appraisal surveys in Bryan and Effingham Counties, GEORGIA, negative and only one mound found in Tifton block. All appraisal surveys in treated blocks in ALABAMA show good results. Specimens collected for first time in Tishomingo County, MISSISSIPPI. Aerial treatment completed on Mississippi State University campus in Oktibbeha County and on part of adjoining area in Webster County. Appraisal survey in Brookhaven where retreatment believed necessary now shows satisfactory results. Several blocks in Smith and Lawrence Counties released after first part of 2 application treatment. Inspections made in north LOUISIANA parishes show some extensions of infested area. Appraisal surveys in treated blocks show good results. Appraisal surveys in treated areas of Brazoria, Fort Bend and Montgomery Counties, TEXAS, favorable. Delimiting survey made in Harris County and highway right-of-way treated in Montgomery County. (PPC, South. Reg., Aug. Rpt.). ALABAMA - Heavy in young pine in south end of Chambers County; lesser infestations noted in Dallas, Perry and Choctaw Counties. (McQueen).

DINGY CUTWORM (*Feltia subgothica*) - OHIO - Blacklight trap collections indicate heavy flights at Wooster (432), Wayne County, and Hoytville (92), Wood County. (Rings, Triplehorn).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - COLORADO - Appearing in light trap at Rocky Ford and observed around neon lights in eastern area. (Schweissing, Jenkins).

A BUTTERFLY (*Cisseps fulvicollis*) - ALABAMA - Quite common on goldenrods in central area. (McQueen).

MAYFLIES - ALABAMA - Enormous numbers transforming to winged stage on Alabama River at Selma and alighting on bridge at 7:30 p.m. in subimago stage; large numbers in this stage noted. Females by thousands heavy with eggs. (McQueen).

SPIDERS (*Argiope* spp.) - WISCONSIN - *A. aurantia* and *A. trifasciata* aroused much comment due to abundance in many areas. (Wis. Ins. Sur.).

AN EARTHWORM MITE (*Fuscuropoda agitans*) - CALIFORNIA - Heavy in earthworm beds in Grass Valley, Nevada County, and in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

	Tempera- ture °F.	Precipi- tation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																								
Kelso 9/5-18				2						2	851						13				25			
Fayetteville 9/5-18											170													
FLORIDA																								
Gainesville 9/16				2					3		29							7			1			
ILLINOIS (County)																								
Champaign 9/13-9	42-80	0		6							132	50				12	48	62		7	176			
MICHIGAN (Counties)																								
Berrien 9/10-16			BL	6							3						8				7		7	
Monroe 9/10-16			BL	15							4						17	6			23		5	
Wayne 9/10-16			2 BL	16												6	14				19		5	
Macomb 9/10-16			2 BL	14												5	8	5			27		7	
Washtenaw 9/10-16			BL	9							2						7				17		3	
Jackson 9/10-16			BL	4							1						3				6			
Livingston 9/10-16			2 BL	28							5					7	25				43		10	
Kent 9/10-16			BL	14							3					7	9				28		4	
Newaygo 9/10-16			BL	8							4					5	12				11		5	
MISSISSIPPI																								
Stoneville 9/13-20	61-96	2.22	MV	32			34		48	56	498	100					8	632		31	56	112	1368	
Stoneville 9/13-20	61-96	2.22	BL	48			45		48	65	2312	344						928		34	56	400	1760	
NEBRASKA																								
Bushnell 8/28-9/7				2		40		4		1	33					15	20		3	2	8			
Kearney 8/26-9/3				38				8		54	156					301	24	64	2	83	447			
Kearney 9/4-6										1	5	1				10		1		6	18			
Lincoln 9/5-11				11				6			135	98		3147		122	3			4	54			
McCook 8/29-9/2				19							43	12					4	8		8	17			
North Platte 8/14-20				39				101		20	18	1				44	9	67	3	32	18			
North Platte 8/28-9/3				42		2		18		12	194					129	26	30	3	16	36			
North Platte 9/4-10				50		17		5		8	306	6				114	29	9	4	13	53			
Ogallala 8/27-9/5				17				1			12					1	5			1	8			
Ogallala 9/6-9/8				2		1					25										7			
Scotts Bluff Expt. Sta. 8/28-9/3				11		5		2		1	2			23			16				10			
Scotts Bluff Expt. Sta. 9/4-10				13		5		3		2	10			26			13		1		9			
NEW JERSEY																								
Evesboro 9/5, 9, 12, 16											32													SC
Aura 9/5, 9											22													beans
Seabrook 9/5, 9, 12, 16											23													tom.

(Continued on page 1161)

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Tempera-ture° F.	Precipi-tation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
NORTH DAKOTA																								
Fargo 9/14-20				15		5					1					33	5				48		1	
OHIO																								
Wooster 9/16-19	42-77	0.04	BL	3							1										5			
Hoytville 9/17			BL																		2			
Vickery 9/15			BL																		8			
SOUTH CAROLINA																								
Clemson 9/7-13				15					1	1	62	51					4	73		2	66		7	
TENNESSEE (Counties)																								
Maury 9/3-9											65							2	17	6	50			
Maury 9/10-16											175	4						88	17	9	205			
Robertson 9/3-9											3										3			
Robertson 9/10-16											212	3					6	22	8	3	13			
Cumberland 9/3-9				21							62								30	4	22			
Cumberland 9/10-16											115	9						39	11	6	76			
Greene 9/3-9				36							52						39	45	9	2	103			
Blount 9/3-9											4							20	8	14	32			
Blount 9/10-16											57	2						29	7	3	141			
Johnson 9/3-9											64							29			47			
Johnson 9/10-16											123	7					25	6			69			
TEXAS																								
Waco 9/14-20			BL	16			91		79	125	696						101	85			207		789	
Brownsville 9/13-19			5 BL	41			22		88	65	104	303		8			160	40	6	57	199		96	
WISCONSIN																								
Mazomanie 9/9-15			BL	3							21					2	4				34			
Middleton 9/11-17			BL	50							34					4	3				42			
Madison 9/11-17			BL	3							40					2	3				26			
De Forest 9/10-16			BL	4							4					1	5				51			
INDIANA (Counties)																								
Lawrence 8/29-9/11				29							13					2	22	12	11	8	12			
Vanderburgh 9/4-16											60					6	14	4		8	2			
Marshall 9/11-17											6					2			2	1				
Howard 9/12-18											5					5			3	1				
Jasper 9/8-16				10							12					164	28	1	7	11	17			
Tippecanoe 9/11-18											4					2	2	1			12			
La Porte 9/9-17				7							4						14	1	1		6			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Tomatoes (for processing) (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A.	Pest or pest complex Aphids, flea beetles, hornworms (Protoparce spp.), Drosophila spp.		
B.	Number of acres[a] produced (From CRS)	No.	9,400
C.	Average yield per acre[a] (From CRS)	Units/	11.8 tons
D.	Price[b] per unit (ton)[c] (From CRS)	$/	30.60 (season average price)
E.	Acres[a] needing control	No.	9,400
F.	Acres[a] treated	No.	7,200
G.	Reduction due to not treating where needed:		
	H. Loss in yield, percent	%	20
	I. Loss in yield, units per acre[a], C x H	Units/	2.36 tons
	J. Loss in yield, $ per acre[a], D x I	$/	72.22
	K. Loss in quality, $ per --[a]	$/	---
L.	Yield loss for all acres[a], (E-F) x I	Units	5,192 tons
M.	Control cost, $ per acre[a]	$/	11.25
N.	Control cost for all acres[a], F x M	$	81,000
O.	Yield loss for all acres[a], (E-F) x J	$	158,884
P.	Quality loss for all --[a], (E-F) x K	$	---
Q.	Combined control cost and losses, N + O + P	$	239,884

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Soybeans (for beans) (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A.	Pest or pest complex		Japanese beetle, spider mites, green cloverworm, bean leaf beetle, Mexican bean beetle, corn earworm
B.	Number of acres[a] produced (From CRS)		No. 280,000
C.	Average yield per acre[a] (From CRS)		Units/ 20.5 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)		$/ 2.30 (season average price)
E.	Acres[a] needing control		No. 75,000
F.	Acres[a] treated		No. less than 1,000
G.	Reduction due to not treating where needed:		
	H. Loss in yield, percent		% 10
	I. Loss in yield, units per acre[a],	C x H	Units/ 2.05 bu.
	J. Loss in yield, $ per acre[a],	D x I	$/ 4.72
	K. Loss in quality, $ per --[a]		$/ ---
L.	Yield loss for all acres[a],	E x I	Units 153,750 bu.
M.	Control cost, $ per --[a]		$/ ---
N.	Control cost for all --[a],	F x M	$ ---
O.	Yield loss for all acres[a],	E x J	$ 354,000
P.	Quality loss for all --[a],	(E-F) x K	$ ---
Q.	Combined control cost and losses,	N + O + P	$ 354,000

Comment: Yield loss only determined since total acreage treated was negligible.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Corn (for grain) (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A. Pest or pest complex Cutworms, corn earworm, sap beetles, European corn borer, fall armyworm

B. Number of acres[a] produced (From CRS) No. 354,000

C. Average yield per acre[a] (From CRS) Units/ 60 bu.

D. Price[b] per unit (bu.)[c] (From CRS) $/ 1.28 (season average price)

E. Acres[a] needing control No. 100,000

F. Acres[a] treated No. less than 1,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre[a], C x H Units/ 6 bu.

J. Loss in yield, $ per acre[a], D x I $/ 7.68

K. Loss in quality, $ per --[a] $/ ---

L. Yield loss for all acres[a], E x I Units 600,000 bu.

M. Control cost, $ per --[a] $/ ---

N. Control cost for all --[a], F x M $ ---

O. Yield loss for all --[a], E x J $ 768,000

P. Quality loss for all --[a], (E-F) x K $ ---

Q. Combined control cost and losses, N + O + P $ 768,000

Comment: Yield loss only determined since total acreage treated was negligible.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Clover-timothy (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A. Pest or pest complex Aphids, clover weevils, meadow spittlebug, plant bugs

B. Number of acres[a] produced (From CRS) No. 212,000

C. Average yield per acre[a] (From CRS) Units/ 1.30 tons

D. Price[b] per unit (tons)[c] (From CRS) $/ 30.00 (estimated)

E. Acres[a] needing control No. 212,000

F. Acres[a] treated No. 75,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 15

I. Loss in yield, units per acre[a], C x H Units/ 0.20 tons

J. Loss in yield, $ per acre[a], D x I $/ 6.00

K. Loss in quality, $ per --[a] $/ --

L. Yield loss for all acres[a], (E-F) x I Units 27,400 tons

M. Control cost, $ per acre[a] $/ 3.00

N. Control cost for all acres[a], F x M $ 225,000

O. Yield loss for all acres[a], (E-F) x J $ 822,000

P. Quality loss for all --[a], (E-F) x K $ ---

Q. Combined control cost and losses, N + O + P $ 1,047,000

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Alfalfa (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A. Pest or pest complex Alfalfa weevil, pea aphid, meadow spittlebug, potato leafhopper

B.	Number of acres[a] produced (From CRS)	No. 92,000
C.	Average yield per acre[a] (From CRS)	Units/ 2.10 tons
D.	Price[b] per unit (ton)[c] (From CRS)	$/ 40.00 (estimated)
E.	Acres[a] needing control	No. 92,000
F.	Acres[a] treated	No. 85,000
G.	Reduction due to not treating where needed:	
	H. Loss in yield, percent	% 30
	I. Loss in yield, units per acre[a], C x H	Units/ 0.63 tons
	J. Loss in yield, $ per acre[a], D x I	$/ 25.20
	K. Loss in quality, $ per --[a]	$/ ---
L.	Yield loss for all acres[a], (E-F) x I	Units 4,410 tons
M.	Control cost, $ per acre[a]	$/ 5.00
N.	Control cost for all acres[a], F x M	$ 425,000
O.	Yield loss for all acres[a], (E-F) x J	$ 176,400
P.	Quality loss for all --[a], (E-F) x K	$ ---
Q.	Combined control cost and losses, N + O + P	$ 601,400

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Tobacco (Commodity) IN Maryland (State or District) DURING 1962 (Year)

A. Pest or pest complex Aphids, tobacco flea beetle, hornworms (Protoparce spp.), budworms (Heliothis spp.)

B. Number of acres[a] produced (From CRS) No. 41,500

C. Average yield per acre[a] (From CRS) Units/ 950 lbs.

D. Price[b] per unit (lb.)[c] (From CRS) $/ .60 (1961 season average price)

E. Acre[a] needing control No. 41,500

F. Acres[a] treated No. 30,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 18

I. Loss in yield, units per acre[a], C x H Units/ 171 lbs.

J. Loss in yield, $ per acre[a], D x I $/ 102.60

K. Loss in quality, $ per --[a] $/ ---

L. Yield loss for all acres[a], (E-F) x I Units 1,966,500 lbs.

M. Control cost, $ per acre[a] $/ 5.63

N. Control cost for all acres[a], F x M $ 168,900

O. Yield loss for all acres[a], (E-F) x J $ 1,179,900

P. Quality loss for all --[a], (E-F) x K $ ---

Q. Combined control cost and losses, N + O + P $ 1,348,800

Comment:

[a] Acres, head of cattle or other producing units used by Crop Reporting Service.

[b] Season average price per unit as given by CRS (describe basis).

[c] Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Harding

Date 4-16-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Apples (Commodity) IN Colorado (State or District) DURING 1962 (Year)

A. Pest or pest complex Codling moth, apple grain aphid, apple aphid, two-spotted spider mite, San Jose scale

B. Number of acres[a] produced (From CRS) No. 4,810

C. Average yield per acre[a] (From CRS) Units/ 363 bu.

D. Price[b] per unit (bu.)[c] (From CRS) $/ 2.00

E. Acres[a] needing control No. 4,810

F. Acres[a] treated No. 4,630

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 5.9

I. Loss in yield, units per acre[a], C x H Units/ 21.4 bu.

J. Loss in yield, $ per acre[a], D x I $/ 42.80

K. Loss in quality, $ per acre[a] $/ 2.00

L. Yield loss for all acres[a], (E-F) x I Units 3,852

M. Control cost, $ per acre[a] $/ 12.00

N. Control cost for all acres[a], F x M $ 55,560.00

O. Yield loss for all acres[a], (E-F) x J $ 7,704.00

P. Quality loss for all acres[a], (E-F) x K $ 360.00

Q. Combined control cost and losses, N + O + P $ 63,624.00

Comment: Mites and aphids caused the greatest amount of loss in the apple producing areas.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Leonard E. Jenkins

Date 2-14-63

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BAGRADA BUG (*Bagrada hilaris* (Burm.))

Economic Importance: The bagrada bug is an important pest of crucifers and some other crops in parts of Africa and Asia. It damages plants much the same way as the harlequin bug (*Murgantia histrionica* (Hahn)) in North America and, from all reports, appears to be just as destructive, if not more so, than this bug. Bagrada bug has long been a pest of considerable importance in South Africa. It is abundant and destructive during the dry months, but is not serious during the wet months of the year. Damage has been estimated at hundreds of pounds sterling each year. Bagrada bug is also regarded as a major pest of crucifers in West Pakistan and India. *B. picta* F. and *B. cruciferarum* Kirk. are in synonymy with *B. hilaris* (Burm.).

Distribution: Recorded in Burma, Ceylon, Ethiopia, India, Iraq, Iran, Italy, Kenya, Northern and Southern Rhodesia, Republic of South Africa, Sicily, Tanganyika, West Pakistan, Uganda, United Arab Republic (Egypt) and U.S.S.R.

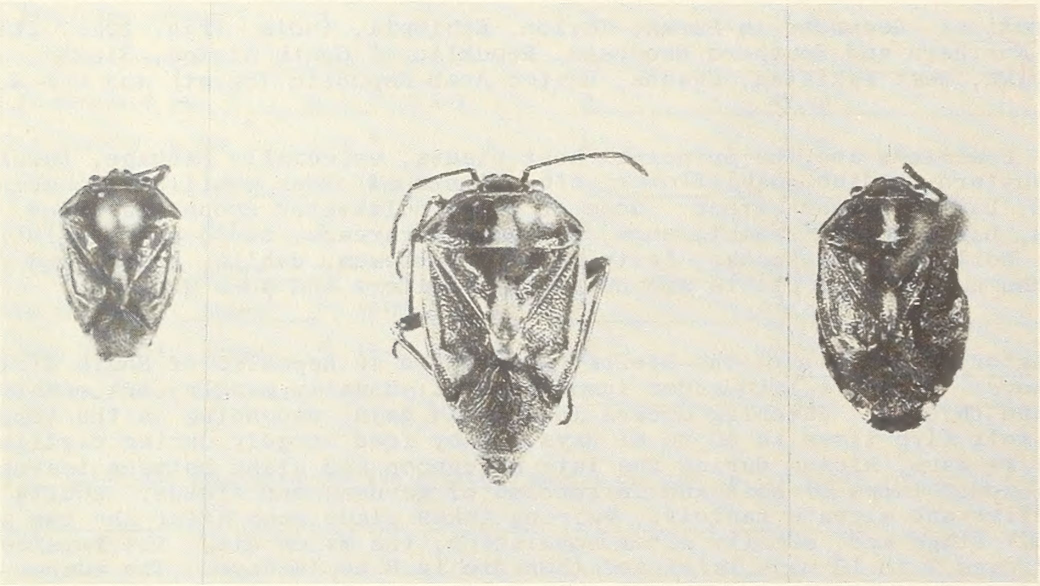
Hosts: Crucifers are the principal host plants, especially cabbage, turnip, rape, mustard, radish, cauliflower, etc. Plants of other families are also injured, but to lesser extent. Some of these cultivated crops are beans, peas, cowpeas, barley, oats, wheat, corn, sorghum, sugarcane, beet, carrot, foliage of citrus, hollyhock, artichoke, lettuce, chrysanthemum, dahlia, coffee and cotton. Among the native host plants are numerous crucifers and some grasses.

Life History and Habits: The biology as studied in Republic of South Africa is as follows: Eggs are laid under lumps of soil; usually singly, but sometimes in two's and three's. Hatching occurs in 8 to 14 days, depending on the temperature. Nymphs molt five times in 50 to 81 days. They feed largely during daylight hours when it is warm, hiding during the late afternoon and night between leaves of plants, under lumps of soil and in rubbish of gardens and fields. Adults are very active and migrate rapidly. Pairing takes place soon after the bug reaches the adult stage and, shortly after copulation, the males die. The females deposit eggs 7 to 10 days later and then die in 8 to 14 days. The number of generations is variable and they overlap. Four or five is the usual number. The total number of days for development ranged 58 to 81 days in the insectary at Pretoria during 1914-1915 and 1916-1917. Weather conditions are important factors influencing development. Wet and cold conditions retard development a number of days.

In India, it was observed that this pest was greatly susceptible to changes in weather conditions and its populations varied in accordance with the shelter available in the crop. It protected itself from cold of winter or heat of summer by remaining under thick foliage, weedy or lodged crop, within the loose folds of leaves, crevices in soil or interspaces under clods, and it migrated from the crop which did not provide it suitable shelter. When disturbed, the pest ran in all directions and adults took flight only when greatly disturbed. The suitable temperature range for feeding was 70° F. to 102° F., with 90° F. being the optimum. It was rarely found feeding under exposed conditions. Peak populations occur during the spring.

Pentatomidae, Hemiptera

Description: Coloration and markings variable, depending on the area. In South Africa, the description is as follows: EGG - Broadly oval, less than one mm. in length; creamy-white at first, turning orange to reddish. NYMPH - First stage about one mm. in length. Head and thorax black. Abdomen deep orange with row of black spots down center and another of black triangles around edge; black spots become larger after each molt until only a few reddish spots remain on abdomen. ADULT - Small, depressed, 4-7 mm. (0.16-0.28 inches) in length, male only about two-thirds as large as female. Triangular in general outline. General color black, with numerous symmetrically arranged orange and yellow streaks and spots on both dorsal and ventral surfaces; ventral surface nearly all yellow in most specimens. (Prepared in Survey and Detection Operations, in cooperation with other ARS agencies).



Adults of Bagrada hilaris (Burm.), Showing Variation

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